# ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF

THE ILLINOIS STATE MEDICAL SOCIETY

VOL. XXVI CHICAGO, ILL., OCTOBER, 1914 No. 4


## Original Articles

### MEETING OF ALIENISTS AND NEUROLOGISTS FOR THE DISCUSSION OF MENTAL DISEASES IN THEIR VARIOUS PHASES.

HELD AT HOTEL LA SALLE, CHICAGO, ILL., JULY 13, 14, 15, 16 and 17, 1914.

*July 13th.*

ADDRESS BY THE CHAIRMAN,


L. HARRISON METTLER, M. D.

CHICAGO.


*Members of the meeting:* This is the third annual meeting and those who attended the other two know how successful they were. We have a very elaborate program this time, out of which, I am sure, we shall get a very great deal of benefit and possibly set some of our lay friends to thinking upon the matters which we are so interested in; and at this point I cannot help but pay a compliment to our friend, Dr. Mefford, for getting up this program for us. We have a large number of speakers this morning and our program is so long that I am going to refrain from wearying you with an address from the chair. I do want to say, however, that I feel unusually honored to be invited to serve you as Chairman of the meeting at this time. I feel that the subjects we are going to discuss are among the most important that not only man is interested in, but above all, civilized man and man living in communities.

John Fiske at one time said that psychology is the science of sciences, because upon the knowledge of the working of mental phenomena depends the validity and reliance of the doctrines in all the other sciences. Herbert Spencer and Kant, and nearly all the philosophers, have identified civilization with mentalization. Without mentalization or the working of the mind, there is no such thing as civilization. Therefore, when you stop to consider that the subjects which we are going to discuss (and put upon record, too, for we shall publish them in book form, open to subscription), are not subjects that we as doctors are alone interested in in the sick room, in the sanitarium or in the asylum, but are subjects that involve our whole community life.

If history tells us anything, history says and shows distinctly that with the change of the mentalization of certain communities those communities either rise or fall. It is not dependent upon industrialism, commercialism, financialism or any of the great agencies whereby civilization is kept going, but this civilization, its rise or its fall, is directly dependent upon the great universal mind among the people. What we are going to discuss, and many of its side issues and details will be brought out, is an immense subject; a subject that is fascinating; and we have on our program those who, in this country, are most capable of handling it. We are going to have a large amount of discussion upon what are called "Borderland" states of mentalization and there we meet with difficulty. We are going to discuss the old problem of "what is a normal mind." It has been said, much of the corruption, much of the crime, much of the wrong-doing that we find in our community is the result of our democracy, in the broad sense of the word, of course. In reaching down and bringing up the people we are going to bring up the inefficient, defective, untrained, undisciplined. The legislator, the statesman, the scientist and people of all the walks of life are looking to us to say—is this man a normal man, or, is this man an abnormal man? There is a danger in some of the subjects we are going to discuss of calling pathological certain states of mental activity which are not pathological, but are simply undeveloped, biologically inferior.

I congratulate the Chicago Medical Society; I congratulate the Committees; I congratulate you and myself in having the opportunity to attend these meetings, which will undoubtedy go on improving from year to year, until the laity and the leaders of thought in our community will see that we can define for them what represents a normal, safe citizen, in our present complicated form of civilization. I feel honored in serving you as Chairman.

I want to state that I shall call upon different members to serve as chairmen and in regard to the papers and discussion, I know there will be no hard feeling if I try to save the time by limiting the papers to 15 or 20 minutes and remind the speakers the discussions will have to be closed in five minutes, unless there is a special request otherwise.

Upon opening the meeting, it gives me great pleasure to introduce to you the first speaker on the program, Dr. James A. Clark, president of the Chicago Medical Society, who is known to most of you and who will deliver the welcoming address.

---

## ADDRESS

JAMES A. CLARK, M. D.

*Members of the Congress of Alienists and Neurologists:* It is indeed a very great pleasure as a representative of the Chicago Medical Society to welcome you to our city and to welcome this very distinguished body of scientists and humanitarians.

In accepting the invitation of the committee in charge of these meetings we feel that you have honored us very much more than we can in any way repay you, but such as we have in the city, is yours to enjoy. We ask you to make the office of the secretary of the society, at 31 West Lake street, your office.

Our post graduate schools and hospitals invite you to attend, as much as your time and inclination permit. Some of our resorts have issued tickets of admission for you, where you can be entertained with music and froth, the third body of the trinity being out of town this week.

It is but fair to state that the great success of these meetings is due, not so much to our large medical society as a whole, as it is to the tireless, persistent, unselfish labors of the secretary of the committee, who illustrates by his works the truth of the saying: "What a catapult is an earnest man. What can resist him?"

An aphorism by Mundt says that "Men think very little and very seldom," and I think you will agree with him that the aphorism is true for the great mass of humanity.

The great benefit of these series of meetings is that they are making many men think a great deal and think often. You are working out problems of great economic value.

I take it that there are three questions of paramount prominence for the world to settle and answer correctly:

1. Moral degeneracy.
2. Mental deficiency.
3. Physical decline.

Will our eugenic friends be able to reach their pinnacle of perfection and establish a utopia where all shall be of physical perfection and ability, with corresponding intellectual excellence? Would not such a condition be like living always in the noon-day glare of a summer sunshine with no change to twilight and night?

The most evident fact in hereditary transmission is death, and the next is the tendency towards disease.

If their ideals are ever carried out—when disease is no more and degeneracy a thing of past ages, will there then be peace and happiness on earth?

Who will do the work of the world—the drudgery, without the commonplace, rather stupid, mediocre man?

How far shall we go in building barriers about permission for marriage, to the end of producing perfect children, and how much shall we sacrifice to the development of educated intelligence?

If every person in this country had a high school or college education, what would happen to all of us? Would our factories be full of workmen? Would our railroads be handling merchandise and passengers better than they do now? Would our streets and alleys and sewers be any cleaner than they are now? Would we be better housed and fed and tended than now? And would our jails and asylums have fewer occupants than now? When our country shall have reached its maximum of population and all the children of the country have been well

born and well educated and we have no more room for emigration, will we hold our supremacy?

Kaiser Wilhelm of Germany said that the beginning of the downfall of England was the passage of the Educational Bill in England. Be that as it may, the statement is not contradicted that in the last few generations the average height of the man of London has decreased six inches and his average weight decreased 50 lbs. Living upon the fruit of the tree of knowledge has always had the same effects, that is, upheaval of social systems and revolutions, more or less bloody. Through the advancement of hygiene, medicine and surgery, the average length of a man's life has been increased 20 years, but the commonplace man finds it increasingly harder after middle age, when experience and wisdom are at its best. The call is for young men.

If all the vicious be confined in prisons, and the deformed and defectives, mental and physical, be kept in hospitals and asylums; if pauperism be done away with by paternalism; if pain be driven from the world by this eugenic panacea, will not charity and pity die because none will need them, and we ourselves lose those attributes which we now are taught to believe are of divine descent?

I may ask which is the better for a nation to have, good physique, and ordinary brain development, or to have brilliant intellect and but indifferent physical body? The eugenists say we must have both. This we sometimes do find, but yet too seldom, nor do I believe that the world will reach this standard this side of the millennium. Time does not permit me to put an immense number of questions that could come under the heading of mental, moral and physical delinquency and how best to deal with them for the good of humanity.

This series of meetings, which started three years ago in the local west side branch, have already become national in their influence, and if the geometrical ratio is kept up, these meetings will be international and universal in their influence, and you will have caused very many men, both physicians and laity, to think often, very much and very hard, and whenever many men think earnestly, unselfishly and honestly, social upheavals and revolutions will better the race.

I take pleasure in turning over the conducting of these meetings to the most excellent chairman of these societies, Dr. Mettler.

## ADDRESS JUDGE HARRY OLSON, CHICAGO.

THE MUNICIPAL COURT OF CHICAGO.

### *VISITING ALIENISTS, MEMBERS OF THE CHICAGO MEDICAL SOCIETY,*

*Ladies and Gentlemen*:

No subject was assigned to me on this occasion and I assume that I have been placed on this program to extend to you the freedom of the town. Usually that courtesy is extended by the Chief of Police, but since private individuals have the right to bring people to the attention of the court without calling upon the police, the committee has taken the precaution to have the freedom of the town extended by one who has jurisdiction of the criminal calendars in courts of first instance. The freedom of the town, I assure you, will be granted. Chicago welcomes the distinguished physicians who will gather here.

The important subjects treated in your program and their relation to the practical questions of the day will go far to educate public sentiment on problems more important to us, as a people, if we but knew it, than the ordinary political questions that seem to absorb the public mind.

Insanity, feeble-mindedness and mental disease in general are on the increase in this country. Many factors contribute to this result, among which first come to mind: the speed of our civilization, inadequate immigration exclusion laws, disregard of the laws of eugenics, the relation of specific disease to heredity and mental health, to which must be added the conservation of the defective classes brought about by higher standards of civilization. Not long since I was in the Smithsonian Institute in Washington, D. C., when approximately 100 skulls were unpacked from a box shipped from Peru, where they were gathered from battle fields where they had lain from a time antedating the discovery of America by Columbus. Each of these pre-Columbian skulls had from two to three holes driven through it as the result of blows struck in warfare among the primitive people to which these skulls belong. Among such a people, war, poverty, and disease, did a thorough piece of work in removing the defective classes. The survival of the fittest left the field to the dominant.

While mental defects are on the increase, so also are the interest and activity of your profession in finding protective and preventive remedies. The immediate and pressing problem is the identification and care of those we already have, both for the protection of society and for the welfare of the afflicted, and after this has been solved the recurrence in large numbers of these defective stocks must be prevented, through a better understanding of the laws of mental health, a restriction of the defective immigration from older countries, segregation of defectives, especially women of child bearing age, popular education in the operation of the laws of eugenics, and the deleterious effects of venereal disease. The general public needs to be informed on these subjects. That this is so, becomes clear when we recall that Congress has spent months in debates concerning the literacy test for immigrants, while very little was being done to exclude the defective classes.

A negro from the cotton fields of Mississippi, with no schooling at all, passed the Binet-Simon test in our psychopathic laboratory in the Municipal Court as perfectly normal. Had he been an immigrant, subject to the literacy test, he would have been excluded from admission to the United States. If he had been a defective of the grade of moron, but was able to read, he would have been admitted into this country under a law requiring the literacy test as the test of admission. This illustrates the lack of appreciation on the part of some of our law-makers of the true situation. Not only legislators, but the electors themselves, sometimes become the victims of their inability to identify mental derangement. So unsophisticated are we that we sometimes elect to responsible public office a troublesome individual whose mischief-making propensity arises from defective mental trouble that most of you gentlemen would recognize because of his conduct in public affairs.

Even the average physician gives but little time to the consideration of the subject of insanity or feeble-mindedness. He leaves that field to the specialist. Until a few years ago very little instruction was imparted in the medical schools in these subjects. Unfortunately the medical men, outside of the alienist group, have been slow to appreciate the conditions they meet with in actual life. The average physician devotes himself to curing disease, and as there is no cure for feeble-mindedness, he is but little interested in the subject. Even the alienist has permitteed the psychologist to excell him in the ability to measure human intelligence. Recently a test was made between ordinary doctors and the Binet-Simon test in the matter of detecting defective immigrants at Ellis Island. The ordinary doctors got ten per cent., while the Binet-Simon scale got ninety per cent.

We have been slow in the United States to appreciate the accuracy of the Binet-Simon scale in measuring the general level of intelligence. It has been proven that it is possible for one who knows how to apply the test correctly, and who is experienced in the interpretation of responses, to give a more enlightened estimate of a child's intelligence, after a half hour's examination, than it would be possible for the teacher or physician to give on the basis of many months of close observation. If the ordinary physician has lacked interest in the subject, what must be said of the lawyers and the judges? Unless a large fee was involved, which was seldom the case where the feeble-minded were concerned, the lawyer gave no attention to the subject. Our judges, as a rule, have little knowledge of psychology, sociology, anthropology or the significance of criminal statistics. To illustrate: Not long ago there arrived in Chicago a fugitive from Ohio, a twenty year old boy, who had committed a triple murder. He was given a neurological and psychological examination by a competent expert in Chicago, and found to have a basal age of eight years and a mental age of ten. He had dementia praecox grafted on feeble-mindedness, an affected lung and a heart lesion for good measure. It was apparent to the casual observer that the boy was extremely backward and stupid. While he lay in jail in Chicago awaiting extradition, it was rumored that an Ohio mob was arranging to lynch him. An Ohio judge on a plea of guilty sentenced him to death. By primitive and barbarous standards, the sentence of this boy can be justified on the ground that it is better for society to eliminate him, but in the light of modern scientific knowledge such a sentence ought not to stand any more than it should stand if it were shown that he was insane. This boy should have been identified before the offense. Had those

who came in contact with him realized his lack of intelligence and control they would not have dealt with him in a way to cause him to kill.

During ten years experience as a public prosecutor in the Criminal Courts of Cook County the fact was constantly being impressed upon me that large numbers of the criminal classes were defective to the extent that their defect was the cause of their criminality. Especially was this so of many offenders of adolescent age.

The static character of criminal statistics the world over; the fact that the criminal age, when most first commitments occur, appears early when responsibilities come and ranges from 16 to 22 years, and that only two per cent of the population are ever charged with crime, always impressed me as significant facts pointing to something inherently defective in the race. The investigation and research of the alienist and the psychologist tend strongly to confirm this belief. Of the defects of the race none is attracting more attention on the part of the physicians, court officers, social workers and legislators than is feeble-mindedness. The number of feeble-minded in this country, according to the best authorities, is about 300,000. These range from the idiot, who requires custodial care, to the imbecile who is quite harmless, up to the highest type of the feeble-minded, known as the moron or borderland case, in which group are to be found the most dangerous individuals. The moron, to the superficial view, is often considered normal, though perhaps somewhat dull and backward. He is unable, however, to compete on equal terms with his fellows and he is unable to manage his own affairs with ordinary prudence.

In the small villages of the country they frequently pass as normal persons, but in the stress of life in a great city the fact of their deficiency becomes quickly apparent. To this class belong a large number of the vagrant tramps; the repeaters in the houses of correction, the petty thieves, the alcoholics and many murderers. Many of this class, not being able to compete with their normal fellows, become objects of charity, or adopt criminal careers. They become beggers and paupers. They are generally unemployed because unemployable. The women of this class form, in my judgment, a large per cent of the women in the slums of the underworld. It is now generally believed by competent investigators that fully twenty-five per cent of the inmates, male and female, of jails and reformatories and penitentiaries belong to this class. The money society lays out upon them at the present time in the matter of police and court expenditures, their maintenance in workhouses, reformatories, jails and penitentiaries, should be used before they become inmates, and in a preventive way.

Mental deficiency as represented by the three types of the subnormal which have been mentioned occurs in all classes of society from the highest to the lowest. The defect may be inborn—germinal—and therefore the hereditary failure of the higher structures of the brain to develop, or it may be acquired, as for example, through an accident or injury to the brain of the child in early life. The failure of the development of the brain may be due to injury of the child at birth from prolonged and difficult labor. It may also be due to injuries inflicted by the midwife or careless attending physician.

There is still another group which includes all of those cases due to arrest of growth of the brain from such causes as maternal injury or diseases affecting the developing embryo. These may be said to be congenital, as for example, that infectious disease syphilis, known as the black plague, which is responsible for so much physical and mental deficiency. The lower we descend in the social scale the more we find the effect of this disease among females. Dr. Mott of London has said that general paralysis of the insane, the essential cause of which is this disease, becomes more and more common among females. Drink, tuberculosis and lack of nutrition also contribute in causing mental deficiency, by injuring the germ plasm and poisoning the blood, when acted upon for long periods of time.

An important distinction must be made between two groups of the defective classes, those who may and those who should not enjoy social privileges as members of the community. From a racial and eugenic point of view the inborn or hereditary defectives are by far the most important because the defect is germinal and, therefore, transmissible to the offspring. This class forms seventy-five per cent or more of the defective classes. The other twenty-five per cent or less, those whose defect is acquired due to ac-

cidents at birth, negligence of physician, etc., are not so dangerous because their defect is not transmissible.

What shall be done to cope with the situation? In the first place these defectives must be identified. This is the province of the alienist and psychologist. In the Municipal Court of Chicago we have segregated certain classes of criminal cases in special courts, the principal ones being the Court of Domestic Relations, the Morals Court and the Boys Court. In the last named court are brought all cases against boys ranging from 17 to 21 years of age.

These courts bring together daily in one place in this city material for the greatest clinic of abnormal psychology in this country. Recently a psychopathic laboratory has been attached to the Municipal Court, of which the three courts mentioned are branches. In the words of the director, Dr. Wm. J. Hickson:

> The plan is to have an experimental, as well as a practical laboratory, similar to the laboratories of Kraepelin, Ziehen, Bleuler, Sommers, Bonhoeffer, Raymond and Janet, and others in Europe, except that it will be devoted exclusively to court cases, thus specializing it.
>
> The medical, psychiatrical, neurological, psychological, anthropological, physiological, pathological and sociological sides of the subject will be studied, diagnosed, prognosed, and data accumulated for further application. Such a laboratory will be really a collection of laboratories, and when this becomes an established fact its contribution to the solution of the problem of crime will be invaluable, not to mention its valuable findings to the branches of science themselves, which are involved.

The laboratory has only been in operation since May 1, but in that short time important facts of grave import have come to light. Of 245 boys examined from the Boys' Court only 18 were found to test normal, on the Binet-Simon scale; only 7.34 per cent of this group had a normal intellectual development. Of the 245 boys, 20, or 8.16 per cent were borderland cases. Of the 245 boys 207, or 84.49 per cent were found to be morons. Their average chronological age was 19 years; their basal age 9 years; their mental age 12 years. Since the mentality is arrested at 12 years, here it will likely remain for the balance of their lives. Lesions of the central nervous system are indicated in all these cases. Heretofore the criminal law has dealt with this class as criminals and they have been sent to jails, houses of correction and penitentiaries. While society must protect itself from the defective, modern scientific knowledge forbids us to treat them as criminals when they have not the intelligence, the judgment or control to get on in the world without oversight and care. Farm colonies for this class is the solution. These unfortunates represent the waste material of humanity, 75 per cent. by reason of heredity; possible 25 per cent by reason of injury to the brain at time of birth or in early life. The attitude of the criminal law towards this class must change and the statistics from the psychopathic laboratory will surely point the way.

It seems that we are on the threshold of a new era in our attitude towards a certain class of so-called criminals.

Many interesting cases come to the laboratory, as for example: A sadist of Jack the Ripper type was identified in the laboratory. He was a mere child, scarcely more than a baby and yet he had killed cats, chickens and made an attempt on another baby.

A cretin, 34 years old, was brought in for wife and child abandonment. He scaled ten years of age. Before the establishment of the laboratory he had served a sentence of five months in the Bridewell for a similar offense. The wife was also a cretin. These little dwarfs had four dwarf children. The children were brought in, and as you know the administration of thyroid gland will bring these children to physical and mental stature.

A woman claimed she was eight months pregnant in order to secure more money from her husband. Examination proved her not to be pregnant at all.

In a bastardy case the examination of the child showed that the accused could not be its father, which the mother then admitted.

Both the Morals and Domestic Relations Courts contribute both insane and feeble-minded men and women. One woman 34 years old scaled eight years, and has become a mother almost yearly, thus contributing to the stock of feeble-minded.

Numerous cases of dementia praecox come to light.

The judges of these courts are aided in dealing with these cases by reports from the labo-

ratory. The judges themselves are becoming informed. The laboratory will in time guarantee the scientific capacity of the criminal judge.

The development of branch courts with resulting specialization, expertness, equipment for meeting current needs and opportunity for adopting constructive polices, has proved that a city court can be much more than was deemed possible only a few years ago. It has proved also, what a few understood, that the court is the one most significant social factor; it is the gateway through which must pass all those who need the counsel and assistance, as well as the restraint of their fellowmen.

The history of the branch courts in Chicago shows that a court is much more than a mere passive arbiter; that under modern metropolitan conditions a court has necessarily a profound social duty. Without in any way impairing the nature of the obligation that the court must be essentially the judicial branch of government; it must give a larger meaning to the word "judicial" in an age when society is bent upon remedial action, when it is necessary to throw light into the dark corners of our civilization and procure data essential to constructive treatment of social ills.

But to return from the courts to the larger question: Having identified the defective, what then? Treatment will rescue many of the borderland insane. The feeble-minded so far are generally hopeless and yet it must not be forgotten that your profession has overcome hydrophobia, tuberculosis, infantile paralysis and cretinism.

Our laws must be recast in the light of your discoveries. In place of the bungling law of our state relating to insanity, we must write something similar to the German Code which reads:

> There is no punishable act if at the time of commission, the actor was in a state of unconsciousness or of morbid disturbance of the mental faculties which excluded the free determination of his will.

It is seen here that through the text of this paragraph the question of guilt is identical with the question of mental soundness.

We must establish farm colonies for the feeble-minded. We must segregate the feeble-minded women during child bearing age. We must adopt sterilization where that becomes necessary. We must pass laws preventing the marriage of the feeble-minded, especially those who are such by heredity. The tax-payer will find that these measures, instead of increasing his taxes, will reduce them.

Twelve states have no laws at all upon the subject of the marriage or divorce of the insane, feeble-minded or epileptic. Thirteen states have no homes for the feeble-minded. Twenty-three states have no colonies for the epileptic.

Your profession should and will take leadership in bringing about reforms. Preventive medicine can accomplish what the courts and jails have failed to accomplish.

It is, therefore, a great satisfaction to find from your programme that you are on the job. I hope the physician will enter public life more than he has heretofore. We need his knowledge in shaping our laws.

I hope you will have a profitable session and that the press will spread broadcast the information your speakers will impart.

In closing let me congratulate you upon the opportunities that are yours because you belong to the greatest profession.

---

## SOCIETY LARGELY RESPONSIBLE FOR THE MOST POTENT FACTORS OF NERVOUS AND MENTAL DISEASES.

CHESTON KING, A. B., M. D.
Proprietor of the Cheston King Sanitarium.
ATLANTA, GA.

It has been beautifully expressed by Kant: "Shere is in every man a divinity, the ideal of a perfect man, conforming to the type according to which God fashioned him; just as in a block of Parian Marble an image of a Hercules or of an Apollo would be found if a divine artist had traced there, by means of the natural veins of the marble, the contour and form of the future statue."

This statue, it should be the aim of society to free from the rubbish that conceals it—to evolve its form, to reveal to our consciousness this inherent ideal of Divinity, enabling mankind to realize it, by aiding the development of all of those germs and dispositions placed within us by God, when he made man according to his own image and disposition, which constitutes our rational nature.

Instead of this condition existing, we see so-

ciety encouraging imprudent speculation, intemperance and vice, augmenting the desire to gain wealth by speculation, rather than by honest labor and virtuous efforts, converting our youth into idle vagabonds, filling our prisons and penitentiaries with defaulters, forgers, bank robbers, thieves and murderers.

Is the owner of your gilded saloon, gambling and drinking hells in Chicago, however high he may stand in church and state, more holy or noble than the miserable, driveling drunkard who staggers into our hospitals, or is committed to our asylums or prisons? Is it not a fact that society looks upon the vitality of the race and the health of the family in an indifferent mood? Our prisons and asylumns bear testimony to the fact: That the communication of disease in marriage is a matter between husband and wife, and society has nothing to do with it. Did the African slave trade, with its floods of poisonous rum and the untold horrors of the middle passage as conducted by the merchants of the New England states in the seventeenth and eighteenth centuries, yield finally any other result than the gigantic bloody Civil war of 1861-1865—whereby the soil of the United States of America was drenched in the blood of her sons and the entire land clad in the garb of sorrow and mourning?

Can the heart of a great state, as revealed in her laws, be rotten and her children be pure, healthy and virtuous? What inducement is there to honest labor and virtuous endeavor, when the mother, a leader in society, a woman of untold influence, spends the greater part of her time, mentality and energy in what she terms innocent and instructive amusement, in being the victor of a prize at a bridge party that would equal in cost the heaviest losings at a $1.00 limit poker game during a sitting of four hours? In other words, she points to the gaming table and the deceitful smiles of chance as the royal road to caste, to wealth, to position in state and church.

The laws of the state are defective, society is rotten, when they do not consider man and his offspring from the following standpoints:

1. The development and perfection of the individual physically, intellectually and morally, for time and eternity as an individual.

2. The development and perfection of the individual physically, intellectually and morally, with reference to his fellowman.

3. The development and perfection of the individual physically, intellectually, socially and morally with reference to his relations to his Creator, in time and eternity.

As society should be the fountain of life and strength to the state and nation, we cannot have a law-abiding and united people, a vigorous and healthy national life, when the offspring is morally and physically defective. A wholesome respect for the sanctity and majesty of law must first be engendered in the heart of the boy and girl in their own home and by the father and mother who bore them. We cannot expect the development of a pure, healthy and noble race of women and men, when the blood of the mother and father has been poisoned by the contagion of vice and the debasing effects of syphilis. Can the vulture breed the eagle? Can the jackal engender the lion? Can you have a double standard of laws? Can society condone in man what is unsparingly condemned in woman—which it accepts as excusable in one and decrees to be unpardonable in the other?

With open doors and open heart, the father of a family welcomes to the sanctity of his home men of political influence and wealth, but whose lives are saturated with the iniquity of vice, born and nurtured in the company of immoral women.

Again—our fair debutantes are often the prey of titled foreigners, whose lives have well been spent in riotous living. Exclusive society bids him a hearty welcome, and social leaders vie with one another in their cordiality.

It is a well established fact that—"Whatsover ye sow that shall ye also reap"—and it is up to the fathers and mothers of our land to see that the sowers of vice in all of the different phases which could be handed down, be not transmitted to their daughters. For how often it is the case, we as physicians see innocent wives and children the victims of venereal diseases and the husband and father is the bearer of this venom, which has left in its wake the wreckage of hope, of health, abortions and diseased children.

It has been well said: "For social crimes and their pitiful consequences masculine unchastity and that false social code, which fosters and promotes it, are largely responsible."

If you ask me the remedy, I would say: Let every man's standard of social morality be elevated. Proclaim to the world that the libertine cannot enter your home. Ostracize the social circles that entertain him. Do not absolve the male offender against immorality while condemning to social infamy the female offender.

Health has ever been looked upon as the first of all blessings, and as immortal beings, and as members of a profession which deals with immortal beings in their last extremities, you cannot, if you would, shut your eyes to the importance of moral and scientific education.

We have three sources for the spreading of this education, viz.: The press, the educators and the clergy. Is it being accomplished? Yes, scientific education is making rapid strides in the elimination of the social evils, but social hygiene has accomplished little.

To illustrate: In the great daily press of our country you see detailed on the front page in the most prominent type a disgusting account of domestic intrigue and the social ruin of someone of the inner circle—whose life or lives have been ruined by venereal diseases; while the downfall has been vigorously painted to pander to the prurient and depraved taste of its readers, no mention is ever made of venereal diseases, which have wrecked their lives. While I can appreciate the attitude of the press on this subject, yet is there not some inconsistency when it often speaks of prostitution, adultery, and other violations of moral acts, yet it shrinks from speaking of a common pathological consequence that affects all humanity, and is lowering the standard of our social atmosphere.

The clergy and educators stand in awe at the thought of imparting to our young women and young men a knowledge of the hygiene of the reproductive functions.

Until there is a general awakening on the part of the medical profession and no longer venereal diseases are branded by another name, until society welcomes knowledge on this subject, which smites the innocent wife and her offspring, until the press wages a campaign of education against prostitution, the purveyor of this infection, until the ministry throws aside the false social code of morals, which is opposed to the moral code of Christianity, which condones in man what it condemns in woman, and until our high schools disseminate the knowledge of *sex hygiene*, we live in a day and time of science which is defective, for man is not comprehended in all the various relations of his physical, intellectual and moral nature. The great fields for this development of the human race are:

1. The family.
2. The church.
3. The physician.
4. The university.

The earliest education of all times is that of the family—it is the fountain of life and strength to the nation.

Show me where it has been neglected, and I will show you lives of physical woes, taunted nerves and mental deficiencies. From the earliest time, the church has been the forerunner of education, and the salvation of our race. The belief in the immortality of the soul and of a future existence of pain or pleasure, in accordance with the good or bad acts of an individual, has been widespread at all times, and amongst most races, and has given form to beliefs and rights.

The scientific physician is the Nation's guardian of public health. He is entrusted with the lives of his fellow men; his life is spent in nearest communion with the sick and dying, in sight of the very gates of eternity. From a socio-biological point of view, he is the most potent of all factors in emancipating from the social evil. To the most modest woman, without offending her most delicate sensibilities, he can speak of sexual life and its diseases, and how often he can forestall the shadow that has fallen over many a home and blighted lives with wrecked nerves and a tortured mentality. The highest type of the physician today is the moralist as well as the hygienist.

The material body of man, with its complicated machinery, appears to have been constructed with exact reference to the action of the intellectual and moral nature.

Ancient Greece gave us the heritage of an intellectual, moral and political education. For the pure life, the health of body and soul, we point to Plato, the Athenian, the pupil of Socrates, whose works remain to this day the great models of Athenian genius, elegance and urbanity, and whose philosophy has been the admiration of all ages.

The thirteenth, fourteenth and fifteenth centuries witnessed the rise of great universities and today the strength and bloom of our American Nation is felt in the great power of its educational centers. Natural science and learning receives its most vigorous impulses from the scientific centers. Men of the greatest learning and research have celebrated the power and influence of universities upon the progress of civilization.

So, to these powerful agencies we must look for a healthful, moral life. They must say to society—your code of morals must be clean, *social prophylaxis* must be the pass word, licentious living, which is a companion of venereal disease, shall not be tolerated. Yet we know that society today welcomes to its ranks the libertine, who regards not the sacredness of the home circle, nor personal purity, or respect for the sacredness of the marriage vow and scatters in his life the germs of infection.

Society owes it to God and our Nation to hand down to posterity a vigorous manhood and womanhood and thereby wipe out the great sosial evils, alcohol and syphilis, that are giving us a heritage of moral and physical weaklings, and taxing our respective states for appropriations almost beyond endurance.

Conservatively estimated, there are today in the United States three-quarters of a million of insane and mental defectives, at an annual cost of about $110,000,000. And this does not include the border line cases or epilepsy.

The figure would hardly be exaggerated, if we computed in each state the number of its insane and those of weak mentality not cared for by the state, at the round figure of one million. And yet one quarter of this million are allowed to propagate their species, which if we did not wage a moral, social, political and physical campaign against, history would in the course of time brand us as a nation once powerful, but now degenerated.

As students of difficult and useful sciences and practitioners of medicine, and as citizens of a powerful and free nation, which today is fulfilling a high political, religious and scientific mission amongst the nations of the earth, the medical profession's watchword must be—*Preventive Medicine;* society's watchword must be—*Social Hygiene.* The family is the unit of society, of the village, town, city, state and nation. From the union of man and wife and from the fruits resulting therefrom, the nation has its perpetual fountain of life and strength. If the fountain be impure, the stream will be foul. Households founded and conducted in violation of the laws of hygiene are standing menaces to the public health. The syphilitic father not only breeds a syphilitic child, but places galling shackles on society.

The injurious effects of alcoholic liquors and narcotics have been thoroughly demonstrated by our profession. A ban should be placed upon it in society.

While athletic and gymnastic sports are of great value to our young men and women, and should be encouraged, yet how often we see their deadly work, by being too excessive, or too violent or too rapid, and ailments following, which often fatally diminish or impair the nervous, muscular and vital powers. Many a young man has been sacrificed to over-exertion in the gymnasium and in the violent struggle for mastery in rowing, swimming and ball playing. This but demonstrates that the American people, as a whole, are extremists and are prone to nervous disturbances. Educational institutions must conform their standards to the demands of public health service, teaching the youth of our land that the stronger race must protect the weaker, that the white race will always be the dominant factor of civilization and that no greater crime could be concurred in or perpetrated in the annals of humanity than the amalgamation and mongrelization of a superior race with an inferior, or the political subjection of the former to the latter.

Then we shall be like the coral insect, helping to rear an edifice, which emerging from the vexed ocean of conflicting credence, shall be first stable and secure and at last cover itself with verdure, flowers and fruits and bloom beautiful in the face of heaven.

## THE DUTY OF THE STATE TO PROTECT SOCIETY FROM DEFECTIVE INDIVIDUALS.

W. S. Lindsay, A. M., M. D.
TOPEKA, KANSAS.

A lively interest in the very young, the very old and the defective members of society is an exponent of civilization.

Organization of society for human welfare must rest on the basis of the greatest good to the greatest number and of necessity must assume authority to formulate and enforce rules at once careful of the interests of the fortunate as well as the unfortunate.

So great has become the burden of caring for the unfortunate that the expense of our various boards of charities and correction is approximately one-half of the revenue of the various states.

The states generally make ample provision for their criminal as well as insane subjects; some, notably Minnesota, Massachusetts, and recently New York, have exercised a friendly supervision over the paroled and discharged cases as well.

This is all very commendable, but in a survey of public work, I think we may discover a lack which we all appreciate. I refer to the care of border-line cases of mental bias and turpitude, which may not be classified.

The mild paranoiac, particularly the alcoholic paranoiac, is a troublesome border-line case, yet close observation for some time will make it possible to classify this and bring it under the rules of admission to a state institution.

Outside of the common forms of mental derangement, we all recognize defective individuals whose liberty entails a menace to society.

You are called as examining physician to report to a commission in the Probate Court. You find an individual, lacking in moral quality of minor character, but who has sufficiently keen perception to pass the tests for imbecility.

A case I have been observing for several years illustrates this.

Carl S., at two years of age, was taken from an orphan asylum by a man and wife without children, careful and industrious people who devoted themselves very largely to the care of the child. He was bright, in full possession of senses and in every way satisfactory till at the age of six he was caught in a petit theft. Small irregularities of conduct occurred till at seventeen he was sent to the State Reformatory for stealing a bicycle.

The fond foster-mother shadowed the offices of probate judge and governor till a pardon was secured. The young man was then apprenticed to a horseshoer, where he worked more or less assiduously for several years.

During this time he was married and shortly afterward I found he had syphilis. He drank whiskey to the extent he could get no work. A place in a rural community was secured for him, but not being able to meet the requirements, he soon returned to his ever-indulgent foster-mother. Frequent small thefts and intoxication resulted in his being sent to the asylum for insane, only to be released on the mother's pathetic appeal, together with the fact that the case could not be classified as insanity.

The use of morphin and cocain was now resorted to and after many months a systematic hospital course of treatment was had, which relieved the trouble for six or eight months.

Small thefts were numerous and the articles taken were sold. Guests in the home had money taken from their purses, furniture from the house was taken and sold, and, whenever such articles were found, Carl would smilingly run along and assist in returning them.

A recent application by the foster-parents for relief from the annoyance and disgrace was answered by the county attorney with the suggestion that the parents move away and lose Carl.

Clippings from local papers of the past year are as follows:

"Carl Smiley, who was in the State Hospital for the insane several years ago, and since his discharge from that institution has been tried for his sanity three times and acquitted, was arrested last night by Chief of Police Josiah Ross and Patrol Driver Calvin.

"Smiley is charged with stealing two wrenches from S. Stanton, of 212 West Sixth street, on last Thursday. It is said he admits he took the wrenches and that he sold or pawned them. Smiley appears to be a confirmed kleptomaniac, and several times relatives in Topeka have located jewelry and silverware in Topeka at pawnshops where the goods had been taken by Smiley. Finally, a few weeks ago, relatives had him tried for insanity in probate court, but he was acquitted. The charge against Smiley is petit larceny."

"Carl Smiley, arrested four times within the past few months for alleged insanity, was taken into custody Saturday night on the charge of petit larceny. Smiley was arrested by Chief Ross and Officer Calvin."

"The police have been asked to pick up Carl Smiley, well known in police circles, upon investigation. Santa Fe special officers charge that Smiley recently stole some drills in Chase county, where he was supposed to be working in the harvest fields."

A few weeks ago, while traveling out in the state, I sat by a benevolent and philanthropic gentleman who proceeded to tell me of his discovery of a most worthy case, needing direction of his energies and, incidentally, a new suit of clothes. When I returned home, another newspaper item told of Carl having pawned the new suit and being in police court.

Such a case as this you recognize as defective, a menace to society, but your report to the court is likely to be acted upon as this one has been on numerous occasions. In your report you can tell of no delusions, no incoherency, no mania-

cal conduct, no failure to pass tests for imbecility.

What shall we as physicians advise for guidance in this country?

In the application for admission to a state hospital for insane, the common form is "We have seen and examined A. B. and believe him to be insane and a fit person to be sent to the state asylum."

My suggestion is to so change our statutes that a finding in probate court may be as follows:

We have seen and examined A. B. and find him to be defective and incapable of managing his affairs.

Provide that upon such findings a warrant be issued as under the present form.

Provide the state hospital with facilities for industrial employment.

Provide that after residence of one year, sterilization of all such male patients and all such female patients, under the age of 45 years, may be done on the order of the superintendent of the asylum.

Our present Kansas law of sterilization is inoperative on account of costs and court requirements and has been held unconstitutional by a district judge. Judge Smith McPherson of the U. S. District Court in Iowa, Judges Pollock and Walter I. Smith, concurring, has rendered a similar decision.

As I understand the latter decision, it applied to punishment for crime and did not touch the question of eugenics, but a reasonable inference, from the report, shows antagonism to sterilization.

These men of undoubted prescience and erudition "see through a glass darkly," as Paul said, referring to the evolution of the Christian religion.

I have not the opinion of the court in full, but with so important a condition as this confronting us, it seems to me that some plan should be evolved whereby this operation could be intrusted to the judgment of competent men.

During the past month the English government has brought into force a regulation known as the Mental Deficiency Act, which provides for the care, in institutions, of a large number who may be classified as wastrels or prodigals with weak wills and limited intelligence and those who from an early age exhibit vicious propensities. The county and borough councils are instructed to ascertain what persons within their jurisdiction are defective and are bound to provide for them.

The right to regulate and control reproduction is coincident with the right to perpetuate the nation and the race and is in line with such laws as eminent domain, heroic measures by boards of health, beginning with Moses' regulation that the leper should be kept without the camp and including the suggestions I have made, all of which an educated public sentiment will soon support.

DISCUSSION.

DR. THEO. A. DILLER: *Mr. Chairman, Ladies and Gentlemen:* It is said, "talk is cheap"; that we talk too much, that is, doctors in general. Dr. King has talked. He has repeated things that have been said before; yet if we reflect a little, great things involving the reform of society, involving fundamental conception of things, can only be brought about by talk and repetition; so I think there will be no excuse offered for the rediscussion of this subject which is now before us.

This question of the prevention of insanity which Dr. King has dealt with is largely a moral question. It is a scientific question only secondarily and there is the hard thing about it. I think gentlemen are making a terrible mistake, a tremendous mistake, who say that if people only knew, if they were only informed, they would not do thus and so. Yes, they would. I favor dissemination of knowledge in the right way, the right time and the right place. I have not made up my mind as yet, with regard to sex hygiene. The youthful mind is intensely curious and the thing that is told a boy or girl in the way of warning may act in a pernicious way. Let us go slowly and let us go carefully in this matter. A gentleman said to me—a man cultured, a man of affairs—"My little daughter is to be married." We were sitting in the lobby of a hotel. The man was known to me and his mother was known to me to be insane for 30 years. She has a great deal of money but they are going to run the chance. They have probably heard that all sons of insane women will not carry the strain onward and there is a certain chance; now, you will see things like that over and over again. You could give mothers in the city of Chicago the pedigree, a terribly bad pedigree of a man and if his social status was right, the bank account was right, they would allow their daughters to marry him. They don't want to be informed; they don't want to see. This question is first of all and primarily, a moral, a religious question. I am not a member of the Holy Roman Church but I congratulate and respect that organization. They have a fine teaching system for their children in the schools and in their homes about these sexual matters. Gentlemen, this is first of all a moral and religious question,

a matter of education comes in but it is very distinctly secondary.

Dr Lewis: It seems to me very propitious that this meeting should open with questions upon the subject which is practically the foundation of our whole work. The question of the defective—what shall we do with him. How we shall handle him is not simply of today but if the question is properly solved now it will do more to solve the questions of the future than anything else and I believe that we should give it very serious consideration. I think in many instances, we have begun at the wrong end of the trouble and, differing with my friend, I think that the question of public education is of vital importance. I believe that the people should know that certain results will follow inevitably certain conditions and to accomplish the best results in this line. I think we must begin at the foundation; if we enact laws, enact them in regard to those cases where there is absolutely no doubt, no question, and where no mistake can be made. Any action that we take, unless it be taken with the support of the community will necessarily be a failure and if we attempt to go too far now and start out or work upon higher lines than the community is ready for we will meet with failure and we will be set back in our progress. I hope that such action will be taken now or during the course of these meetings as may lay a firm, solid, substantial foundation which will gradually become the basis of a completed structure in the future.

Dr. Solomon: *Mr. Chairman, Ladies and Gentlemen:* I think that Dr. Diller has struck the keynote of a question which we ought to decide here. It seems to me that the spread of the knowledge which we have is absolutely essential. If you do not give the motive or the reason for the law, or the moral standard which you have, you are not really forcing home the issue. If you endeavor to set down certain fixed rules, as to the method of living, as to hygiene, whether it is physical or mental hygiene or any other variety of the subject, the first essential is spread of the knowledge we have and with understanding of the motive then the conduct will be so much more assured. The fact is, that the set of meetings which we have here is for the object of finding out the fundamental things which bring about the forms of mental disturbance, of mental aberration in one direction or another and without a spread of those, the movement will not advance at all; people are not going to do things just because you tell them. If you tell the reason for it, you are much more apt to have the people follow out the lines of conduct; of morals. The issue, however, is how far are we to go in the spread of the knowledge; how far, for example, in the spread of sexual hygiene; that is really the only issue. There really ought to be no discussion of all the knowledge we have—whether it is medical, sociological, eugenic or of any other department.

Dr. Punton: I think that Dr. King has been recognized by the leading medical men of this country for a long time but after hearing his paper, it reminded me of a leading lawyer in our city who at one time was called upon by a great many of our citizens to nominate himself or allow himself to be nominated for the governor of the state. He answered, he did not wish an office of that kind; he had other business to attend to besides that kind of politics. He preferred to remain in the rank of the educator without so much public agitation. I am inclined to believe that is true so far as medicine is concerned We cannot bring medical reform until the men are educated and until they are educated in the proper way. This is largely a moral question as well as a scientific one. We cannot bring about any change simply because we are medical men. We have got to get in touch also with the lawyers and with the preachers and with the best people of the community. In other words, there is to be public sentiment back of any reform. I was very much interested in the paper by our friend, the lawyer (Judge Olson), this morning. He ought to be presented with a diploma of medicine, for he illustrated his knowledge of the leading and up-to-date scientific facts of medicine. It seems to me, if all would see as he sees it, it will not be very long before we would have laws which are pertinent to the laws we are now considering. In the establishment of this criminal laboratory, as he expresses it, it cannot fail to bring a large amount of good as well as correction of this defective, delinquent class.

Dr. Henry S. Munro: There is no expression of the mental separate from the physical; that is, the treatment of mental and physical diseases cannot be separated. Mental diseases, so called, are frequently merely the expression of some general pathological condition, such as specific infections, abnormal internal secretions and other conditions associated with disordered metabolism. Science knows no such thing as morality. It states facts and it is facts that count. This is not a moral or religious—it is a scentific question.

Dr. Stout: You have the evidence—you are the jury, part of it. What are you going to do with them; they are a menace to society; what are you going to do with that character? A few years ago I heard a noted lawyer tell this story: A farmer was taken to an insane asylum; he looked it over very carefully and found that they were propagating their own kind. The gentleman was taken around and he said, what are you going to do with them? The old farmer screatched his head, thought a minute and this idea struck him, that the best thing to do with them, was to treat them as they would treat derelicts from the farm. Those that live on the farm will know what I mean. Sixty years ago or more, in *Harper's Magazine* was published an article, "What shall be done with skrugs?"—skrugs represents the criminal class. It was a long article and finally this conclusion was reached: One-third were amenable to treatment and reformation; one-third should be confined to the penitentiary for life; and what about the other third?

He suggested an island in mid-ocean and let the island sink.

JUDGE OLSON: I have great faith in the establishment of the concrete example of the working together of the doctor and the court. Right here is an important thing for men in your profession to realize, that the immediate future is to make a large demand upon you in a way that it has not done in the past. For example, the doctor in charge of our laboratory will ask for additional help very soon and other cities will establish laboratories and they are going to ask for more help and I think the demand is going to be upon you very strong in a few years. The training necessary to hold those higher positions in those laboratories is, of course, very great. The man must be a neurologist, he must be a psychologist, he must be able to take tests and the tests necessary for diseases and blood poison; it requires rather a wide training, so that an exceedingly great demand will be made on your profession by the public in the very near future. We are going to have a city laboratory, I think the city of Chicago in the next two years will have a psychopathic laboratory in connection with the welfare department of Chicago. In New York City they have a corps of men at work and I think the public are waking up to the fact that the Women's clubs are doing great good. The gentleman a moment ago was afraid of what the women's clubs were doing. I believe they are going to be our salvation. Women are smarter than men; they are interested in life—they give life. My mother used to say about boys, that the older they got the more trouble they were. Men are engaged in making money and sometimes are not very careful how they make it. This speed of money making does not affect women as much as men. We, therefore, do not give attention to children as do the women and the women's clubs are doing something to clean up this country.

---

*July 13, 1914, 2 P. M., Hotel La Salle.*

## MAN'S TENDENCY TOWARD ABERRATION.

MEYER SOLOMON, M. D.

CHICAGO.

Instructor in Psychiatry and Clinical Psychiatry and Instructor in Neurology, College of Medicine of the University of Illinois.

In these modern days of progress and of enlightenment we hear much of the science and practice of eugenics or race culture, of the role of heredity and of numerous other questions of biologic, sociologic, economic, medical and humanitarian importance. Most of the discussion along these lines is centered about the problems of the mentally defective, the delinquent and the dependent, the alcoholic and the other drug habitués and the other abnormal and pathological character make-ups and types which go to constitute the large class of mentally defective and mentally disordered. In short, we are dealing with the protean mental aberrations. These frequently occurring and universally wide-spread aberrations are usually conceived of by most of us as phenomena which are so strange, so unusual, so mysterious and of such unknown and unknowable origin that they are surely far beyond the ken of the human mind. I need not call your attention to the frequency with which they are considered to be "things apart," things *sui generis,* which have no relation to the rest of us apparently normal individuals, things which must stand apart and be viewed with wondering eyes and in a different light from that with which we view the mental qualities and characterological units, the mental trends or types, desirable or undesirable, favorable or unfavorable, which are found to be inherent in the make-up of the rest of humanity. So much has this been the case that we find that special departments of study have necessarily arisen for the purpose of elucidating the mystery of the various aberrations of man. And each such abnormality or aberration is being studied more or less separately or individually, too frequently as something which is very peculiar and non-understandable.

It is my object in this paper to lay stress upon a subject concerning which, I believe, most of you will, on reflection, arrive at a not very dissimilar opinion. I refer to man's normal tendency towards aberration.

For some time past I have been giving considerable thought to three theories, which to me are facts, which seem to me to be of the greatest importance. I may enumerate them as follows: 1. Man has a uniform primitive mental make-up; 2. Man has a tendency toward aberration; 3. In the struggle of life, in the efforts for survival in the battle for existence, we seek happiness by self-expression and the gratification of the personal tastes and feelings in the best, most desirable, most convenient or most fit manner under the circumstances with which we may have to deal. Our method of self-adaptation or of reaction, of self-preservation or self-expression in any situation, follows the law of psycho-physical progression, fixation and regres-

sion along evolutionary and developmental lines, and is conditioned by our mental level and mental make-up as determined by the hereditary and environmental influences which have moulded us and are still moulding us.

I do not propose to develop these three theories in this place. I do, however, wish to direct your attention to the second theory—viz., that of man's tendency toward aberration. This problem has so many and such extensive ramifications that I shall do no more than touch very superficially upon the general problem under consideration. My statements will be of a general nature, and no efforts will be made at this time, to prove the truth of the declarations here made.

It is necessary at the very outset to explain what is meant in this paper by aberration, or rather mental aberration, since it is the mental aberrations which we shall consider. I shall call aberrant or abnormal any tendency which is retrogressive and which does not come up to the normal standards of conduct of the community. The tendencies which are outside the range of the normal or average, but which are progressive, useful, desirable and in the direction of the perfect or the ideal, although aberrant or abnormal when compared with the normal or usual, will not here be considered as aberrant or abnormal. In other words, I shall confine the terms aberration or abnormality to retrogressive tendencies which are undesirable and below the common standard of conduct. Genius and special talent will, therefore, not be included in this discussion of the aberrations or abnormalities.

The number of possible aberrations is very great indeed. They may be of many kinds, of any degree or in any combination. Single qualities or special mental trends; general trends; certain more or less complex clinical pictures or combinations of these pictures may occur as aberrations. For practical, working purposes, we may, however, indicate certain important and general aberrant tendencies. The following general groups may be mentioned as the most important in this connection: The feeble-minded; those excessively weak in will power and lacking self-control; the drug habitues; the psychoneurotics; the insane; the sexually aberrant; the criminal and delinquent; the prostitute; the dependent, the hobo and the vagrant; the cranks, the ill-balanced and the eccentric. Many other smaller groups could be enumerated. But the classes here mentioned comprise the great majority of the mentally aberrant or abnormal. And it is this general class to which I refer when I speak of the mental aberrations.

The men gathered together in this meeting of alienists and neurologists are of course interested in such problems as the feeble-minded, the insane, the neurotic and psychoneurotic, the narcotic or drug habitué, the sexual pervert, the prostitute, the criminal, the hobo and the vagrant and many other classes of mentally defective, mentally disturbed and mentally aberrant. From a scientific and practical standpoint, it is interesting and important to trace the genesis and evolution of these separate conditions. This, indeed, is true biogenesis or psychobiogenesis. I shall not attempt this difficult task in my present paper, but I shall endeavor to point out certain relationships and to impress upon you certain viewpoints of a decidedly valuable theoretical and practical nature, and which should, I feel, give us a better, broader insight into and understanding of the tremendously important and complex problems touched upon in my passing remarks.

I shall first enumerate, without discussion or comment, certain self-evident, generally accepted truths which have indeed been given a firm footing, thanks to the influx of biological knowledge.

Phylogenetically, ontogenetically and embryologically, from both the anatomical and physiological aspects, our past histories, and hence the human make-up, is fundamentally and universally of one kind. This sameness applies to every organ and to every system of the body, including the nervous system with all its structures and functions, and to the body as a whole or as a unit. We all have the same organs with the same functions—the same relationships, the same life-history from the very genesis far back in prehuman days, the same evolution and development, and in all other respects we are essentially the same, anatomically and physiologically speaking. There are, to be sure, very wide variations within and certain defects or disorders more or less not within the normal range, to be found here and there.

It is now generally known that man has a universal possibility of or predisposition for or tendency toward organic disease—defective or

disordered functioning of one or the other or several of the organs or systems of the body. This possibility, predisposition or tendency varies considerably. In some cases we find that certain family strains seem to have certain special systems—cardio-vascular-renal, respiratory, nervous and others—which are more easily disordered in a general or specific manner than any of the other systems in their own bodies or than the same systems in the bodies of other people. But even aside from this special hereditary, inborn predisposition which exists in certain families, it surely is a fact, well borne out by observation and experience, that, varying in degree, man has a more or less uniform and universal possibility or predisposition for physical or organic disease. He has a universal polymorphous perverse physical predisposition or possibility. Any of us are apt, under certain combinations of circumstances, to develop defective or disturbed conditions of any of the organs or structures of the body—the heart, the kidneys, the lungs, the blood-vessels, the nervous system or what not. And this may be brought about by physical or mechanical or toxic or infectious or other traumatic insult or by physiological excesses. In no condition is this seen more clearly than in tuberculosis and in the diseases of the young and of the aged. The old German axiom, "Jedermann hat am Ende ein bischen Tuberculose" is more or less true. To extend our generalization we have but to refer to the possibility of or predisposition or potentialities for organic disease in general, to lay down this dictum or truism: Every man has a certain predisposition for or may possibly acquire any physical or organic disease to which human flesh is heir. It is thus primarily a question of degree, the predisposition or the susceptibility varying with the hereditary make-up and the life-experiences. I need not mention the biochemical, internal glandular and other physiological and physico-chemical processes which lie at the root of these various conditions.

Now, not only are the physico-chemical, simple physiological and individual organistic activities of man of a universal make-up and subject to the same disorders, but this applies in like fashion to those higher and more vital functions of regulated respiration, circulation, ingestion, exercise, play, rest, sleep, and to the host of other biological activities, functions and methods of action and reaction. These are instinctive and automatic in character, the degree of instinctiveness and automaticity varying considerably in degree.

Finally, we come to still higher, so-called conscious activities, both physical and psychical, which have to do not with the inter-relationships between the individual organs, but with the relation of the organic, psycho-physical make-up of the individual on the one hand to the environment on the other; that is to say, with the relations of and the adaptations of the individual to the society and the world about him. This interreaction and the resulting adaptation is what we call conduct in the social sense.

There will be general agreement by all of you to the proposition that all instinctive actions and feelings are relatively the same in all of us, the potentiality varying in degree.

In like manner we may agree that the basic biologic instincts or tendencies, physical, psychical or psychophysical, upon which all human actions, feelings, emotions and conduct are built, are found to be universally present in all of us. I need not here enumerate these instincts or basic tendencies.

Amongst normal individuals this principle of a uniform mental and physical make-up is granted as being self-evident and entirely true. So much so is this the case that I believe that I can say, without attempted proof and without fear of contradiction by those who give this matter sufficient consideration and reflection, that normal man has a single, uniform, primitive psychophysical make-up or constitution. As my paper will deal more particularly with the mental side of the individual, I may say, more specifically, that the human mind, past or present, however little or well developed, conscious or subconscious, so long as it be not outside the confines of that range which we may give to the normal, is fundamentally and essentially of a uniform, primitive make-up.

It may seem very strange to the disinterested onlooker, but nevertheless, it is a fact, that although most or all of you will readily agree, at least after reflection and observation, that all normal individuals are more or less alike and differ from each other mainly in the degree of development or intensity and in the various ad-

mixtures of the many instinctive tendencies, feelings and kinds of reaction or adaptation and of the numerous mental and moral qualities or characteristics, still, when we come to consider certain mental aberrations, abnormalities or deviations from the straight and narrow path, be it alcoholism or other drug habits, criminality, feeble-mindedness, the insanities, neurasthenia, hysteria, psychasthenia, and all the other so-called abnormalities, there at once arise considerable differences of opinion, different standpoints are assumed, various theories are promulgated, and certain more or less positive and definite conclusions are drawn with respect to each of these many aberrations, each one of which is now looked upon as a specific and individual, extraordinary and unexplainable phenomenon. Nor do we find so many individuals who are so willing to agree that these various conditions have their seeds of origin in the make-up and tendencies or at least in the possibilities of all of us, and that, at some stage, every one of us had or has a potentiality for or tendency toward or possibility for one or more of the defective, disordered or aberrant mental states.

In order to bring home my argument more forcibly, permit me to call your attention to the difference between the so-called normal and the so-called abnormal. The division into normality and abnormality is not so absolute or definite as some would believe or seem to believe. Mental normality and mental abnormality are relative conditions. They vary with the age, the sex, the nationality, the race, the moral and legal code and standards of each community. What is normal for a child of five may not be normal for a mature adult of thirty-five or for an old man of seventy-five. What is normal for a Frenchman or an Italian is not necessarily normal for a Norwegian or a Russian. What is normal in the cafe of a gay city in the wee hours of the morning is not normal for the traveler on the Sahara or for the dweller in the hidden recesses of Africa. And what is normal for one individual is not necessarily normal for the rest of us, even for those of us of the same age, the same religion, the same education, the same training, the same nationality and the same race. In other words, in judging normality we must consider the inherited familial and racial phylogenetic and ontogenetic make-up of the individual and his environmental life-history. Each person must be judged individually and on his own merits. What we have come to call the normal is not the perfect, the absolute and the ideal but the usual, the common, the ordinary, the everyday, the average. And that which falls outside of what we as individuals or as groups of individuals would regard as the usual, the common, the everyday, the average range we refer to as abnormal or as aberrant, meaning by that the unusual, the uncommon, the extraordinary, the infrequent. And because of its infrequency and its unusualness we regard this or that quality or tendency as strange, peculiar, non-understandable, abnormal. The difference between normality and abnormality is a question of majority and minority—and the majority rules.

Depending upon the range of our experiences and the breadth of our viewpoints, and hence upon the limitations of what we would consider normal or average, our corresponding idea of abnormality or aberration is determined.

Nor do most of us appreciate that the so-called aberrations or abnormalities are but exaggerations or caricatures to more or less extreme bounds of normal tendencies or potentialities; that they are but a side-tracking or one-sidedness of one's energies and activities. They are, I mean, the activity of normal tendencies or possibilities present in most or all normal individuals expressed in exaggerated ways in the aberrations.

The question of the relation of or the dividing line between sanity and insanity is so *apropos* of this question that I shall say a few words in this connection.

The real difference between sanity and insanity is, essentially and fundamentally, one of degree and not of kind; it is a relative and not an absolute difference. Between the two extremes of positively sane on the one hand and positively insane on the other hand we find an uninterrupted series of intermediate mental states, which merge imperceptibly by a continuous series of gradations from sane into insane. We have, therefore, certain mental states which are just on the borderland, the so-called borderland cases. These mental states may be quite transitory or temporary, or they may be more or less prolonged episodic occurrences, or they may be characteristic of the individual's general tem-

peramental constitution or make-up and thus represent one or the other of certain specific mental types. The study of character, personality and mental make-up, of mental types and modes of reaction is most important. We must recognize the hysterical type, the neurasthenic type, the psychasthenic, the shut-in or dementia praecox type, the manic-depressive type, the cranks, the ill-balanced and eccentric individuals, hoboes and vagrants, sexual perverts and many others. These groups of cases go to form a large proportion of the classes which stand on the borderland, as it were, between the certain ground of sanity and the uncertain sands of insanity. It is these individuals who, under some great stress of strain or some new demand for adaptation, present a reaction which is but an exaggerated expression of the tendency or trait which has always been present in them but in a less active, less noticeable form. In insanity the multiform mental pictures, the peculiar conduct and the varied symptomatology do not arise *de novo*. All the conditions were there before, but in a less recognizable, relatively dormant or latent form. And it is in our disorders that the mind unearths, as it were, the hidden or only slightly active tendencies or trends which at bottom, were more or less dominating the personality, making the individual just what he was. It is in times of toil and of trouble and of mental and of disappointment, of difficulty and of struggle, of new needs and of novel adaptations, that we show our mettle, the stuff whereof we are made. It is then that we unfold ourselves and develop qualities and resort to conduct which we, as well as others who thought they knew us, little dreamed that we were capable of. It is in such perilous periods in the course of our lives that the good and the bad in us, the depth of our character, our mental make-up, our type of reaction comes to the surface and holds full sway. It is in the mentally disturbed states that we see the underlying forces, for good or ill, that undermine the character and the conduct of the individual. And such a study affords us an opportunity not only to study personality and mental types, but, still better, an opportunity to study the mind of man, the tendencies and make-up of mankind. Here, indeed, is a fascinating, interesting and valuable side of psychiatry and psychopathology.

Without further developing this idea we may say that the activities and conduct in the insane and in the other aberrations are but expressions, frank and open, of tendencies or possibilities which were always there before, which were little or not at all cultivated, but which are now being brought to the surface or resorted to or cultivated for one reason or another. The general tendency is nothing new. It existed before, at least dormantly. It is really only its degree and its particular manner of expression which is new. Numerous examples could be given, but one especially appeals to me at the moment. I refer to man's tendency toward ambidexterity. This is an unusual, uncommon accomplishment when it is well-developed in any individual. But let us remember that originally in prehuman days, we were ambidextrous, and that one handedness, usually right-handedness, was assumed because of certain biologic needs which I shall not here discuss; and that it was assumed to such an exclusive extent that it has truly become a loosely inherited trait, though by no means fixed. And let us further remember that left-handedness may be developed in conjunction with right-handedness, this being determined especially by practice and repetition. The reasons for this repetition or for fixation at or reversion to ambidexterity I shall not here discuss; but it is apparent that when we view ambidexterity from the evolutionary and developmental standpoint, with the various possibilities, probabilities and predispositions, we see that it is not such a strange, not such an extraordinary, not such a nonunderstandable or unexplainable phenomenon. It is the genetic, evolutionary and developmental standpoint which here comes to our aid, and, by making the condition so easily and definitely understood, practically brings it quite within the normal or expected range. As soon as a thing is understood it loses its mystery and its abnormality.

Let me repeat, then, that the difference between the normal and the abnormal is thus one of degree. It is merely the difference between the usual and the unusual, the slight and the great. The abnormal or aberrant have all the possibilities or tendencies or qualities of the normal, but in different degree, individually and relatively. The degree of potentiality and the proportionate relationship of the various ele-

ments in the combination are different. In the same manner the normal have all the possibilities or qualities of the abnormal, but in different degree, the latter being dependent upon the instinctive trends and the developmental history.

According to this idea, therefore, all the potentialities, qualities, tendencies and activities which we find in the mentally abnormal should be present or exist, at least as possibilities, in some degree, in some form, at some time, in the mentally normal.

I have stated that the human mind is, at bottom, of a single, uniform, primitive make-up or constitution. Since our phylogeny and ontogeny is the same and since the conflicts with which all men have had to deal have been more or less similar, man has developed a uniform mental constitution, with more or less similar mental trends or psychic tendencies. The predominant tendencies, the proportionate strength of the individual trends and the specific combination or admixture may differ, but the general goals or directions are the same. We all have the same instincts. The same feelings and emotions prompt us and guide us—but the proportionate relationship and individual intensities differ in all of us under different conditions or in each of us at different times or on different occasions. Still, the number of possible instincts, feelings and emotions are the same for all of us, and any of them may, under sufficient cause or provocation, be brought into activity, some more easily, others with greater difficulty.

Now, the number of possible methods of reaction, of dealing with certain situations or of adaptations, is limited and uniform for all mankind. During evolution and development a certain number of general reactions of a psychical and psychophysical nature have been developed. It is probable that many or all of these possible reactions exist in some measure in all of us, but there is a tendency for one or more of these methods of reaction to be most dominant or to be most easily aroused, but it is possible to cause many different types of reaction in the same individual under different circumstances, or a combination of two or more of these methods of reaction may occur at the same or different periods in response to the same cause or to different causes. According as our method of reaction is most easily aroused in one or the other of a number of general directions, we have one or more special mental traits or special character make-ups. Many of these types or characterological trends are undesirable, unfavorable, harmful to the individual, frequently antisocial—lead to inefficiency and are more or less retrogressive. A few of these more general character make-ups of aberrant type have been mentioned. They are the psychopathically constituted persons and include the hysteric, the neurasthenic, the psychasthenic, the unresistive and post-traumatic (with an intolerance for alcohol, fever and trauma), the manic-depressive or cyclothymic type, the shut-in or dementia praecox type, the cranks, ill-balanced, eccentric and paranoic class, the psychopathically depressive, the psychopathically exalted, and the psychogenic or symptomatic depressive groups, the dependent, hobo and vagrant, the criminal, the prostitute, the narcomaniac or drug habitué, the sexually aberrant and others.

There are combinations of these trends, some being present in greater, others in lesser degree or potentiality. Those who are of a neuropathic or psychopathic constitution, or mentally defective or unstable in one or the other of these directions, may, under sufficient provocation, under sufficient pressure, stress and strain, adapt to or meet the situation in one or the other or a combination of these general ways. It is thus that in the mental aberrations we see the dominant tendency or tendencies, as inherited or as developed during the life-time of the individual, which were the driving forces and upward strivings and emotional cravings of the individual prior to the development of the aberration. The aberration is simply an exaggeration of a tendency or possibility normal in the same individual before its appearance in exaggerated form and normal in some degree in the rest of us. Whether one becomes a neurasthenic, hysteric, psychasthenic, manic-depressive, praecox, paranoic, a criminal or what not or a combination of two or more of these depends on the special circumstances and the more dominant trend or trends, some or most of which are present in some degree in all of us.

Let us consider feeble-mindedness. The acquired form might have occurred in relative degree in any of us—due to prenatal, intrauterine or birth conditions which might have afflicted

any of us or due to the infections, toxic and metabolic diseases of childhood which may attack any developing child. Moreover, slight degrees of feeble-mindedness may occur in any person due to improper training, neglected education and other factors. Feedlemindedness may be of any degree. At the present time we consider it pathological and measure feeble-mindedness when the mentality is up to the age of 15, but not beyond. And yet an individual of 55 who has the mentality, in one or more respects, of another who is 25, or 35 or 45, is relatively feeble-minded. Furthermore, the defect may be in the emotional or moral sphere rather than in the intellectual sphere. At the present time we are grouping as feeble-minded only those who do not go beyond the fifteenth year mentally, and we are testing the intellect almost exclusively. What we call constitutionally inferior is but little different from feeble-mindedness. Nor should we fail to consider the many intellectual, emotional and moral defects, those mental imperfections and weaknesses which most or all of us have.

In mentioning the psychoneuroses I shall refer to what we are in the habit of calling neurasthenia, hysteria, psychasthenia, hypochondria and simple depression. Some of us have a tendency more to one than to the other of these states. Others have a tendency to an admixture of these types of reaction or adaptation.. Those of a neuropathic and psychopathic constitution have a greater tendency toward the psychoneuroses in general than the rest of us. But where lives there the individual who can say of himself that he will positively never develop a psychoneurosis, no matter what the combination of circumstances may be which he shall encounter? Almost all of us are potential neurasthenics. Which one of us may not develop a hypochondriacal or simple depressive state? Practically every woman and many men are potential hysterics. Many of us are potential psychasthenics. We all have certain mental defects, certain mental weaknesses, certain relative degrees of mental weakness, of feeble-mindedness (in the broad sense of the term).

That every one of us is a potential psychoneurotic of one or another kind is certain. The individual psychoneuroses are clinical pictures or syndromes which run one into the other by an uninterrupted series of gradatory states. The syndromes are pictures or combinations of symptoms or qualities which exist in all of us. One or the other combination or admixture of them may occur in any of us for a greater or lesser period of time, under slight or great stress. Varying in degree we are all potential psychoneurotics of one or another type, some of one, some of another, some of a combination; some more, some less.

The psychoses may be viewed in the same light. Each one of us is potentially insane in one or the other or several of a number of general directions. That this is true of the organic psychoses, the toxic, infectious, exhaustive and post-traumatic states goes without saying; but I am referring here to the so-called functional and psychogenetic psychoses, such as manic-depressive insanitary, dementia, praecox, paranoia, etc. Every one of us has the potentialities for one or the other or a combination of these conditions. They may come to the fore under certain special conditions, particularly in the mentally defective and unstable. When the psychosis occurs we see the predominating type or types of reaction for that particular individual, under the special circumstances of his life. Thus an insane individual may present a special type of psychosis or a mixture of two or more different forms with an atypical picture as a result.

I believe that every man is a potential drug habitué in varying degrees.

How many of us are subject to periods of relative emotional exaltation and of relative emotional depression or the so-called cyclothymic or manic-depressive make-ups?

Any of us may develop psychogenic or symptomatic depressions.

Some of us have a tendency toward depression and others toward exaltation on slight occasions.

Our unresistive and post-traumatic susceptibility is patent in all of us. Toxic, infectious and other traumatic conditions may affect any of us in a more or less similar way.

Freud has shown conclusively in all of us the possibility for sexual aberration. Each one of us is a potential sexual pervert. Each of us is a potential criminal and all of us are moral delinquents in some form or other, in some measure, at some time.

Polygamous and polyandrous tendencies con-

stantly beset us. The tendency toward prostitution varies in different women.

When one aberration comes to the fore, others are apt to present themselves also. For example, an alcoholic is very apt to show criminal tendencies, sexual perversion, or develop insanity. The insane individual, besides showing his general psychic trend or mode of reaction may show criminal tendencies, narcomanic trends, sexually aberrant inclinations, and other aberrant tendencies. In other words, the special character make-ups are but exaggerations of types of reactions present in one or the other of us. And the aberrations are only exaggerations of tendencies present or possible in all of us, in one or more directions.

What are the determining factors for the appearance or non-appearance of these tendencies or possibilities? It is determined by our inherited make-up (the inherent potentiality of our different instincts, trends and types of reaction), our developmental experience, our training, example and opportunity, our difficulties, our stress and strain, the degree of adaptation necessary at any time, the degree of our mental stability or instability, the degree of will power and intellect—in short, our stage in mental evolution and development, and the situation with which we have to deal. It is this which conditions our special tendencies or trends, frequently accompanied by other less dominant tendencies or possibilities, as a means of adaptation for self-preservation. It is thus that one or the other or several of the many methods of adaptation come to the surface.

Why should this be? Our phylogeny, ontogeny and present life-history are more or less similar. Our special or general trends differ in degree and proportionate relationship as determined by our history, our evolutionary and developmental make-up. All of us have inherited from prehuman days and from primitive man all the tendencies or possibilities of man—some more, some less. Under certain special conditions any of us may lapse toward barbarism or retrogress and show our special, exaggerated, aberrant trends or any one or more of the general trends characteristic of man or his forebear at a lower stage of evolution and development, at a lower cultural level. It is in the primitive man, the savage and the barbarian, in the child, the immature adult, the feeble-minded individual, the individual with weak will power, of a neuropathic or psychopathic or neuropsychopathic make-up and in the disordered mental states that general trends, special trends or possibilities of a retrogressive nature may show themselves or develop. But the possibilities, usually in certain general or special directions, exist in all of us.

I already mentioned that if exposed to the inciting factor, any of us might develop one or the other of the toxic, infectious and other traumatic diseases of the nervous system, our susceptibility varying in degree. Thus any of us might develop paresis as a result of leutic infection. No man can tell which one of us might or might not develop this terrible disease if attacked by syphilis. And it is in the early stage of this very disease—paresis—that we see the trends or possibilities of mankind appear. Here we may find psychoneurotic, especially neurasthenic reactions or states. Drug additions, particularly alcoholism, may appear. Sexually aberrant tendencies may show themselves. Criminal tendencies may develop. And other tendencies of a like aberrant nature may abound. Excitements and depressions, paranoid states, katatonic states, etc., may come into the field. This applies not alone to general paresis; the same applies in different degree to dementia praecox. In fact, in every one of the psychoses we find aberrant mental trends characteristic of other psychoses or aberrations in which they are present in more exaggerated form. Thus the mind disordered or deranged or aberrant is nature's psychological laboratory and unearths for us the constitution or possibilities of man.

In the feeble-minded individual we see the same thing. Being of a lower mental order because of inherited or acquired conditions (the latter of which may affect any of us in the course of our development, with a not very dissimilar result) in which instinctive tendencies, feelings, emotions, actions, reactions and various methods of adaptation play their greatest role, in which mature criticism and judgment are lacking and in which social rules are not followed, in which adaptation is more instinctive, naive, retrogressive and natural, we find excitements and depressions frequent, the insanities are frequent, hysteria is common, criminality, al-

coholism, vagrancy and other mental aberrations occur with ease and with great frequency. Those are the natural tendencies of man at that level. The child, immature, can be developed along criminal lines, or sexually aberrant lines, or can be developed to show certain special psychoneurotic trends. Woman can be brought up in polygamy or polyandry. And so the story goes. The laws of habit formation are here supreme. Habits are but prolongations of our instincts and the number of instincts and habits are the same for all of us, the degree varying within wide limits.

The downward pull, the retrogressive tendencies, the aberrations may occur spontaneously or be cultivated, the ease or difficulty of arousing them, the transiency or permanence, the slightness or greatness of the tendency varying within a wide range.

In our dreams and dream states, we may show many retrogressive tendencies—criminal tendencies, psychasthenic trends, and others. The primitive man, the savage and the barbarian show us our possibilities. The animals below us show us our possibilities. But most of all, the men and women who surround us, normal, abnormal or aberrant, show us our many possibilities, in varying degress, and limited by our special inherent potentialities or trends, our stage in evolution and development, our training, opportunity, example, and the degree and kind of adaptation necessary.

To prove that in varying degree and within certain limitations man has a tendency to one or the other of the aberrations, let us take the tendency toward criminality.

There are all kinds and degrees of criminality. Criminality is a legal and social term. It is not a medical or scientific term. The criminal, as usually regarded, is the antisocial offender who is caught within the clutches of the law and declared guilty. The moral delinquent or the moral criminal or even the legally declared criminal who can keep from being caught, or, if caught, is not found guilty, is not generally regarded as a criminal. But, from the medical and scientific standpoint, the caught criminal and the criminal who is not caught are of the same kind—they are brothers. Furthermore, the difference between moral obliquity and antisocial conduct which society or the judge or the jury forgive and that which is taken cognizance of and punished as criminal is relative, quantitative. What are crimes in one country or community may not be crimes in another. And as new laws are passed and moral and social standards are raised, the number of possible crimes is increased. It seems to me that every one of us is a potential criminal, and at times has resorted or almost resorted to truly legally criminal actions. The dishonest corner grocer, butcher, pushcart peddler, stock-broker, salesman, cardsharp, faker, financier and the swindler in general, whether they resort to methods of so-called legitimate business or go beyond the confines of what the majority of business men may consider legitimate are none the less criminalistic, if not truly legal, let alone moral criminals. Under certain special determining conditions the criminal tendency may be developed in any of us to an exaggerated degree, under sufficient stress and strain. Under proper conditons the best of us will resort to a greater or less degree of criminality or moral obliquity.

If anyone of us at the present moment suddenly found himself in a world of thieves, robbers, murderers and criminals in general, with no possibility of escape, he would be forced to resort to one of several methods of adaptation. He would adapt by resorting to a certain degree of criminality to preserve himself in the struggle of life, or, refusing to do this, he would starve himself to death, would become dependent and a beggar, or would become a hobo and a vagrant (which usually means a combination of nomadism, dependency or beggary and criminality), would fall a prey to one of the drug habits, would develop one or the other of the types of mental disorder, or would commit suicide. But if, from earliest childhood, we were brought up in such a community with its criminal standards, each one of us would develop a greater or lesser degree of criminality, in addition to any other tendencies which we might have.

Is not this what we should expect? What is the mainspring of criminality? It is but one of the methods of self-acquisition or self-preservation, of self-expression or the gratification of the personal tastes and feelings, frequently as immediately as possible and at any cost to be paid in the future, with little or no regard to one or more of the rest of humanity, and with no re-

gard to the laws of the society and the community in which one lives. When society has decreed that certain modes of expression or self-preservation or self-acquisition or gratification of the personal tastes and feelings are prohibited and attaches a penalty thereto, that form of conduct is then legally labelled criminality. Criminality is a relative condition. The criminal differs only in degree from the rest of us. And all of us are potential or actual criminals of varying degree.

What are the determining factors for the fixation at or regression to criminality? I cannot discuss this here, but the tendency or the particular direction of the tendency shows itself most usually in the young, the mentally defective, the mentally disordered, and in any of us under certain stresses or strains or under special conditions, as a means of temporary or permanent adaptation. The criminal tendency is also frequently present in the insane, in those of weak will power, in the savage and barbarian, in dreams and in other mental states of a lower cultural level. The determining factors need not be further discussed in this place except to mention that the general and special tendencies are determined by our instinctive make-up, our environmental conditions, and our stage in evolution and in development—by our mental level.

This applies not alone to criminality but, in a certain measure, to all the other aberrations.

Let us consider alcoholism, for example. The craving for tea, coffee, cigarettes or other more or less harmful stimulants differs from the craving for alcohol mainly in degree. The individual of a neuropathic or psychopathic constitution or of weak will power, of feeble mind, the primitive man, the insane and others may easily acquire this craving for alcoholic stimulation. But almost any individual under proper life experience and opportunities for habit formation in this direction may acquire this tendency in greater or less degree. That the other drug habits, such as addiction to morphin, opium, cocain, etc., may also be acquired under certain special accidental but determining conditions, is well known to all physicians who relieve the pains of suffering humanity.

The tendency to lapse toward barbarism and toward one or more of the aberrations, in varying degree and combination, is present in all of us, especially in the relatively primitive, the relatively infantile, the mentally defective, unstable and disordered.

I wish in this paper to lay down the general principle that man, using this term to include the infant, the child and the adult, primitive or civilized, educated or uneducated, defective or disordered, normal or abnormal, has not only a uniform primitive mental as well as physical make-up, but also a universal polymorphous perverse psychophysical predisposition or possibility, this predispositon varying in degree and depending for its expression on the relative, proportionate, instinctive, inherent constitution and on the life-experiences.

This theory is but an introduction to a broader theory which I should like to discuss but which I shall leave for another occasion. I refer to the theory of psychophysical progression, fixation and regression along evolutionary and developmentary lines, with the determining factors for conduct.

Viewing the abnormalties in the light here mentioned, we see that they are not so unusual, so abnormal, so unexplainable as we are wont to believe. We understand them better. We realize the comparative irresponsibility of those who have sidetracked their energies.

The practical importance of these considerations is wide, but I shall not discuss this aspect of the question.

The difference between the normal and the abnormal; between the progressive and retrogressive, the average and the aberrant is more one of method (refined or coarse), and of degree than of kind; and when it is a difference of kind, it is of dominance and of proportionate relationship or proportionate dominance. Basically the goals and objects are the same in all mankind. The method employed,—the means to the end, is different. And it is the means employed to obtain the basic ends which determine our fitness or unfitness, our worth or unworth, our stage in mental evolution and development, our progressive or retrogressive tendencies.

The aberrations are thus but exaggerations of normal tendencies, acquired or possible of acquirement in the course of evolution and of development. They are but the fixations at or regressions to relatively prehuman, primitive, archaic and infantile tendencies which may be

developed in all mankind in a certain degree, under certain special circumstances.

Aberrations are a resort to a means of expression of conduct characteristic of animalism and barbarism or of a lower stage of evolution and development.

Any of us may develop these tendencies under normal or abnormal conditions. But they occur more particularly in the primitive, in the savage and barbarian, in children, in the feeble-minded, the insane, in our dreams, in those of weak will power, in those who are easily suggestible, in the ignorant and superstitious, in those lacking a definite goal in life, without determination and strength of character, self-assertion and individuality, in those lacking a critical, self-sufficient, optimistic philosophy, individuality and independence of spirit and of purpose. Those who are of relatively high cultural level, who are relatively high in the scale of evolution and of development, who have arrived at self-consciousness or self-awareness and practice self-control and self-direction along progressive, idealistic lines, with perfection as the goal—these are least apt to develop or resort to or cultivate the abberant tendencies natural to the baser elemental trends of man.

Here, then, is shown most clearly the needs and objects of race culture, pedagogy, mental hygiene, character up-building, morality and high ideals in practical life, in our business and social relations.

The mind of prehuman days and of primitive man has run down the ages and it still pervades all of us in our varying degrees of evolution, development and civilization.

---

## THE RELATION OF PSYCHIATRY TO MEDICINE.

CHARLES RICKSHER, M. D.
Pathologist, State Psychopathic Institute.
KANKAKEE, ILL.

Since the establishment of the first asylum for the insane medical men have claimed, and it has been generally understood by the laity, that insanity was a disorder which belonged to the province of medicine. At the present time no one denies that mental disorders are associated with disorders of the brain and no one in an enlightened, civilized community would think of calling in a theologian to cause the devils to leave the patient's body. At the same time, however, no one can say that the mass of physicians have kept up the little knowledge of mental disorders they acquired in the schools and only a very few of them have endeavored in any way to increase that knowledge.

As with the other branches of medicine, that relating to the diseases of the mind has grown slowly and has passed through periods of superstitution and varying religious beliefs and for centuries its advance has been hampered on account of the persistence of these beliefs. During the middle ages and well up into modern times little was done to care in any way for those who were unfortunate enough to show peculiarities in thought or in actions. It was not until the 18th century that the first lunacy act was passed in England, although before that time the insane had been segregated to a certain extent.

The study of mental disorders did not keep up with surgery and internal medicine during the 19th century although very good work was done in the early part. Gall's work calling attention to the fact that the brain was a specialized organ and that it did not work as a whole, thus beginning the study of cerebral localization, the work of Bayle in differentiating general paralysis, the adoption of more humane methods of care for the insane by Pinel, Chiarugi and Tuke, all took place before 1830. From then, until the study of the nervous system received a fresh impetus by the discovery of the silver stains, little was done in the way of scientific study. The majority of works during this period were devoted to the medico-legal aspect of insanity, to a philosophical discussion of terms or of classification or to the administrative questions which occupied the minds of asylum superintendents.

Since about 1890, however, the study of mental diseases as definite physical ailments has advanced steadily and our knowledge of the cause, course and termination of the various disorders has increased greatly. In America and the greater part of Germany and France the adoption of Kraepelin's classification stopped some of the debate on that subject and allowed more time to be devoted to the study of symptomatology, etiology, pathology and treatment. While the advance along these lines has been slow, it has been steady.

The general medical profession, however, has not kept up with this gradual advance in knowledge in mental disorders and for this there are several reasons. Since primitive times an insane person has been considered as one accursed and consequently one to be avoided. The patient was secluded and his infirmity excused in every way. This is due in great part, also, to the general tendency on the part of the public, and physicians, to consider some family taint as responsible for the trouble and also to the so-called stigma which the patient is supposed to have received when he is summoned before a court and jury and adjudged insane. The legal processes have done a great deal towards causing the public to avoid an insane person as it avoids a condemned criminal.

Gradually, however, the system of voluntary commitments and psychiatric clinics are removing much of the cause for this manner of thinking and the people are beginning to realize that insanity is not a single disease or entity but that mental disorders are varied and that mental symptoms may occur in many so-called physical diseases.

Strictly speaking, the fever deliria belong to the great class of mental disorders which are of toxic origin but are transitory in nature. Fever deliria are not uncommon and are accepted by the general medical man as the results of the general toxemia. When, however, they are prolonged or when they occur subsequent to the fever, as in certain post-typhoid or puerperal psychoses, they are considered rather as definite insanity and the medical man is at a loss to account for them or to treat them.

Many of these psychoses might have been avoided if they had been recognized early—*i. e.*, if the mental symptoms had been correctly interpreted. The toxemia is a condition which the physician can sometimes alleviate even if he cannot entirely avoid some of its effects. A case of this sort clearly shows that mental symptoms are part of the physical disorders which it is the duty of the physician to study and to be able to interpret. The physical basis is clear, the symptomatology, while it is not always clear, is fairly definite, and the treatment is purely physical. No one would consider seriously sending such a case to a theologian in order to have the devils, created by the diseased brain cells, driven out of the body by incantations.

Practically all the psychoses which are associated with organic brain disease are only secondarily mental disorders. Arteriosclerosis is responsible for many of the cases of mental disorder occurring in the aged. This is associated frequently, but not always, with a peripheral arteriosclerosis with its attendant bodily symptoms. Headache is a frequent and troublesome symptom, nephritis is common, and there is a general wasting of the tissues of the body. After a paralytic attack there is either aphasia or paralytic symptoms. The pre-paralytic symptoms are interesting but are not generally known nor appreciated. They consist of attacks of vertigo, of sleeplessness, and even pure mental symptoms may occur. Savage has reported a patient who for some months complained of sleeplessness and neuralgic pains chiefly fixing themselves in the eyeballs. The patient became irritable and changed his servants frequently; he became emotional and his memory failed. After some weeks hallucinations of hearing developed and he, on several occasions, got up at night, believing that a bell had rung. These auditory hallucinations became very annoying and the patient was very troublesome in protesting against them. Later hallucinations of smell developed and he almost developed ideas of persecution, thinking that the smells were made with the purpose of annoying him. After several months he had a severe apoplectic attack and died following the convulsions.

Savage explains the symptoms on the basis of poor nutrition of the brain. "There was probably some atheroma about the vessels at the base which had impaired the circulation through the brain and thereby impeded nutrition; and as a result the hallucinations had occurred one by one. Each of them might be looked upon in the light of a pain to the sense. The patient was thus affected by a simple pain in the eyes, by bell-ringing, clanging and rubbing noises in the ears, by a sensation of smoke and fusty smells, as affecting the nose—all painful sense-impressions comparable one with another."

The senile cases show simply the atrophy associated with old age. The atrophy of the cerebral convolutions is comparable with the loss

of tissue in the skin, the gradual breaking down of all the tissues of the body.

General paralysis is essentially a physical disease. The mental symptoms are secondary to the organic changes in the brain and throughout the body. The cause of the trouble is an exogenous one, one brought in from without and causing changes in the brain or spinal cord due to some unknown lack of resistance in these structures. Physical signs of the trouble are seen very early, probably before mental symptoms appear. This is, however, difficult to determine owing to the fact that attention is usually attracted to the patient by the mental abnormalties. The physical signs are always present and indicate a diffuse lesion of the central nervous system.

In the manic-depressive psychoses the physical accompaniments are not so easily discoverable. In excited states there is a loss of weight and increase in temperature, but this can be well attributed to the motor unrest. In the depressed states the furred tongue, the general lack of desire for food, the constipation, are physical signs which are almost always present. The exhilaration, the feeling of well being, the sensory hyperesthesia of a manic would indicate some stimulation of the nervous system just as the slowness, the physical depression of a depressed patient would indicate the oposite action. Lugaro in his Problems of Psychiatry explains this depression and exhilaration on the theory of a diffuse chemical action on the brain. He says:

"It is only natural that the functions for which a more complex co-operation of units is necessary, must react to the effects of a general depressing action more than other simpler ones; therefore the highest functions are the first to become weak. The processes which are determined directly by sensorial stimuli are therefore more advantageously situated in comparison with others produced by internal stimulation through asociative paths. This constitutes another reason why the perception of objects may be less disturbed than the association of ideas, and especially the elaboration of complex processes of reasoning. But perception itself feels the damaging effects of slowing and simplification of associative processes; weakening of sensorial attention and apperception properly so-called occurs; the external impressions no longer undergo any process of selection, any reinforcement or any inhibition on the part of the associative centers, and consequently they are received passively without being impressed on the memory or without exciting any interest. Therefore from the general depressing action there result weakening of association, of reasoning, of elaboration of motives, of will power, of the capacity for grasping, retaining and elaborating impressions, and of taking an interest in external affairs."

A diffuse increase of excitability, in a moderate degree, may apparently be an element favorable to function, but when prolonged there must be some damaging result to the organism.

Recently the mental disorders associated with disturbances of the various glands of the body have attracted some attention. It has been recognized for years that absence of the thyroid or non-function of this organ produces a condition of physical and mental weakness which is quite characteristic. When the gland functionates properly or when fresh or dried thyroid is given by mouth the symptoms disappear and in cases which begin in infancy the arrest of development may be overcome.

The secretion of the suprarenal glands has a remarkable effect upon the blood pressure by causing a contraction of the blood-vessels. Repeated injections of this secretion causes lesions of the blood-vessels and eventually causes arteriosclerosis. Since arteriosclerosis is a common cause of mental disturbances in the aged, the conditions influencing the suprarenal secretion are of great interest to psychiatrists as well as to the general medical man.

Since puberty and the menopause are periods in which mental diseases are especially liable to begin, the sexual glands have received a great amount of study. Both the period of beginning of sexual life and that of the end are accompanied by mental diseases, frequently of a chronic type, each peculiar to its period. Just what the effect of the sexual glands is in the production of these disorders or whether there is only a secondary action induced in other glands by the onset or cessation of functional activity or, indeed, whether there is any relation to the psychoses is yet an open question. The lesions of the hypophysis and pineal body may be accompanied by various mental symptoms which may easily mislead the clinician.

Our knowledge of the correlation of the various glands, the nature and function of their secretions and the disorders produced by their disfunction is as yet little known and will require careful study and much experimentation to determine.

The problems of psychiatry are those of medicine. The anatomy and pathology of the nervous system must be developed. Nervous pathology is as yet only in its infancy and new methods of investigation are being developed as in other branches of this field. The study of social conditions, the conditions predisposing to mental disease is the same as that relating to the study of the bodily disorders. Finally the determination of the causes of disease are the same in both fields. Just as we do not know why the kindney or lung is involved in certain individuals and not in others under apparently the same conditions, so are we ignorant why the brain is diseased in one patient who suffers from syphilis and the liver in another. These questions will require much study, but few believe they will not eventually be solved.

The lack of definite knowledge of the anatomy and pathology of the central nervous system and the difficulty of acquiring what is known concerning its complicated structure has repelled students, especially when there was apparently so little to be gained by such study. On the mental side the generally accepted belief that a person once attacked with a mental disorder was incurable and the thought that mental disorders occurred only in insanity has prevented many men from giving the subject the study they should. The increased popularity of psychotherapy and the demand of the public that the physician be one who can treat the mild mental disorders will gradually force a more general study of these cases. The spread of teaching centers, a realization on the part of the physician of the importance of knowing how to interpret and correlate mental symptoms and a knowledge of the part played in his every day practice by his unconscious psychotherapy must lead to a study of medical psychology and in that way to a knowledge of the as yet to him little known field of mental disorders.

---

## BILATERAL PERIPHERAL FACIAL PALSY.

(Report of case.)

TOM BENTLEY THROCKMORTON, B.Sc., M. D.
DES MOINES, IOWA.

The occurrence of bilateral facial paralysis, whether of central or peripheral origin, is of sufficient rarity to warrent a due consideration of the subject whenever an opportunity for the study of a case is given. A unilateral facial paralysis is by no means an uncommon condition and results from a lesion involving some point of the facial nervous mechanism between the cortical origin of its cells in the lower third of the motor area of the brain to the ultimate distribution of the facial fibres in the periphery of the human economy. In the central type, where only the lower quadrant of the face is involved, the lesion is usually due to tumor formation, hemorrhage, degenerative conditons, syphilitic manifestations, etc., whereas any of these factors may also be instrumental in producing a paralysis of the peripheral type, but usually a history of trauma, middle ear disease, exposure to cold, toxic and infectious conditions, alcoholism, etc., will be obtained.

Bilateral facial palsies, however, are much more rare than are unilateral phenomena and may be caused by any of the factors above mentioned implicating both sides of the facial mechanism. Sometimes they are the result of a peripheral nerve involvement such as may accompany a general multiple neuritis due to toxic substances, such as lead, alcohol, etc. That one may encounter a true Bell's palsy which simultaneously, or almost simultaneously, affects the two sides is also possible, but the rarity of localized lesions involving only the seventh pair of cranial nerves seems evident from the frugal statements, bearing on the subject, found in recognized neurological works and literature. That lesions simultaneously involving some portion of the peripheral distribution of the facial nerves do occur is evident from the following case report.

*Case Report.*—An adult male, aged 34 years, native of Iowa, white, single, singing evangelist, consulted the writer January 7, 1914, for bilateral facial paralysis. The onset of the paralysis had been sudden and the duration had extended over a period of some seven months.

*Family History.*—On the paternal side, nothing of a direct bearing on the case could be elicited from the history. His maternal grandfather, however, at the age of 50 years, sustained a unilateral facial paralysis (Bell's type) and the patient's mother, at 65 years of age, suffered from a similar condition for a period of some three months. No definite cause could be ascertained for the onset of the paralysis in either case, but recoveries were made in both instances.

*Personal History.*—Patient as a rule had always enjoyed good health, and had never had any serious illness or affliction until the onset of present trouble. Had measles at 16 years of age, without sequelae, one attack of "grippe" eleven years ago, and another attack about four years ago, from which good recoveries were made. Has had three attacks of what he termed "rheumatism" in which the muscles about one shoulder were involved. Each attack lasted about a day, but there were no inflammatory changes, joint involvement or other untoward phenomena. For the past ten or twelve years has been more or less constipated. Does not use tea, coffee, narcotics or alcohol.

*Present Illness.*—May 24, 1913, while engaged in church work in Wisconsin, he was taken with an attack of the "grippe." He stated that he felt quite ill, fever arose above 104° F., had several chills, headache, and in a few hours had general aches and pains. On the 3rd day the temperature reached normal, headache and general aches subsided and although he felt weak, he returned to his work and conducted a musical rehearsal. On the evening of the 4th day he became quite heated following the physical exertion of conducting a large chorus choir. The weather was warm and humid, and he occupied a seat near a window which was lowered from the top, exposing the back of his head and neck to a draught.

Two or three days later while at the breakfast table he noticed that his cheeks felt rather strange to the touch, and that they had a tendency to droop. Food, which he says tasted normal, collected between the cheeks and the teeth, and necessitated the cheeks being pushed inward in order to clear away the particles. On examining his face in the mirror, he found that both sides were completely and absolutely paralyzed. There was total inability to wrinkle the forehead, elevate the eyebrows, close the eyes, dilate the nostrils, move the ears, or to move any of the muscles of expression. He then recalled that one or two evenings before the onset of the paralysis that he had suffered from pains in the region of the angles of the jaws and that gradually the pains had radiated backward behind the ears. Following the paralysis, the pain became exceedingly severe at times, so much so that a hypodermic injection was given by the attending physician to alleviate the suffering. Paroxysmal pains radiated over the scalp posteriorly and gradually became more or less localized in the median line of the neck a litle below the external occipital protuberance. He does not recall having any tinnitus, pain in the ears, nor increased or decreased sensitiveness to low or high pitched sounds. No herpes developed about the ears. He was confined at irregular intervals to his bed during the week following the onset of the paralysis, but was obliged to remain quiet for a period of some three weeks following, owing to weakness.

There was no return of motion to any of the affected muscles until ten weeks following the paralysis, when a very slight elevation of the outer angle of the right eyebrow could be accomplished. Two weeks later there was a little return of power to some of the oral muscles, so that the corners of the mouth could be retracted very slightly. Very gradually there was a little return of power to the facial muscles, but the first marked return of motion in the occipito-frontalis was not until between five and six months following the paralytic onset and was then noticed on the right side only. For a long time the salivary flow was greatly diminished, but of late this condition has improved. The sense of taste was never lost, but apparently there must have been some diminution, for the patient was obliged to season his food with far greater quantities of salt than he formerly was accustomed to do.

Apparently the treatment instituted consisted largely of anodynes, measures to relieve the local congestion, and nerve tonics. During the following September, the patient began using, of his own accord, the faradic current and the statement was made that at times it seemed to make some of the muscles contract. Galvanism was never used.

*Examination.*—Inspection of the face, when no voluntary effort at contraction of the facial muscles is made, does not reveal any special change or defect. There is an absence of any transverse lines or wrinkles across the forehead and the naso-labial lines are considerably erased, yet apparently equally so. However, the moment that voluntary effort is made to move the muscles, the bilateral palsied condition of the face at once becomes markedly apparent. The paralysis is more noticeable on the left side, there being a trifle more ability to elevate the outer angle of the right eyebrow, and on marked effort the right corner of the mouth can be retracted more than is possible on the left side. The movements, however, are greatly limited, considering the range of normal muscular action.

The eyes can be opened and closed at will, but any attempt to close them tightly is met with ill success. All efforts at talking or laughing brings out the inequality between the palsied sides, and attempts to whistle, purse the lips, wrinkle the forehead, expose the teeth etc., are unavailing. Speech is not interfered with as far as linguals are concerned, but there is a very noticeable defect in the enunciation of words and letters in which labial sounds play an important part. There is hardly a perceptible movement of the lips during the act of talking.

The tongue protrudes in the median line, is covered equally with a whitish fur and its lateral margins are somewhat fissured. Sensation is preserved, but various tests with acid, sweet, bitter and salty materials indicate a possible diminution of the sense of taste, particularly in the anterior two-thirds of the organ. The sense of smell is preserved, vision and range of ocular movements are normal, ptosis, diplopia, nystagmus, hemianopsia and abnormal pupillary phenomena, are absent. The masseter groups are firm and contract equally, and no disturbance of sensation in the distribution of the trigeminals could be

elicited. Hearing is retained and about equally so, and no abnormal findings indicative of the involvement of the ninth, tenth, eleventh or twelfth pairs of cranial nerves can be found. The uvula hangs in the median line, and the soft palate contracts equally when "ah" is sounded. Station and gait are normal and the deep reflexes of the extremities are all preserved.

As may well be expected in a case in which improvement has been gradually taking place, the electrical changes are not typical of a complete peripheral nerve degeneration. The response to faradism and galvanism are about equal on the left side while on the right side faradism produces a little more pronounced contracture than does galvanism when the motor points are stimulated.

That the case is one in which the peripheral branches of the seventh pair of cranial nerves were simultaneously involved needs, I feel, no special comment before this society. That the process extended upward in the Fallopian canals as high as the points where the chordæ tympani branches are given off is evident from the diminished taste sensation and salivary secretion. The absence of hyperacousis or painful sensitiveness to musical notes of low pitch, as well as no evidence of having had pain or a herpetic eruption involving the auricle and external auditory canals, shows that the process did not extend to the nerve supplying the stapedius, or to the geniculate ganglion. However, the etiological factor or factors that may have been responsible for the bringing about of the bilateral facial paralysis is not only a question of considerable interest but perhaps of some speculation as well. That the too sudden cooling off in a draught following the marked physical exertion incident to conducting a large chorus would be of itself, in the absence of other possible causes, a goodly and sufficient reason for believing such a factor to be the direct etiology. This becomes all the more apparent when we realize that in a large number of cases (73 per cent according to Oppenheim) in hitherto healthy individuals this condition has been known to follow as a direct consequence of a chill, draught, washing the head, sleeping with open windows, etc. But the question as to the possibility of an infectious or toxic origin due to an influenza infection is not to be wholly ignored. Paralysis of the facial nerve has been known to follow such conditions as diphtheria, and mumps, and as pointed out by Oppenheim "a facial paralysis and an otitis may be produced simultaneously by the same cause, chill, infective disease (influenza, typhoid, etc.)" It is by no means difficult to understand the *modus operandi* in those cases in which parotitis is present, or for that matter where an otitis exists. That there is direct involvement, in such instances, of the facial nerve at some place along its course in the bony canal or after its exit from the same by an inflammatory process or resultant edema is, I am sure, perfectly obvious. In this case, however, if an influenzal infection played any role as an exciting agent, it would appear to be in the absence of any associated otitic involvement. That the paralysis may have resulted from a combination of an infectious process and chilling is, it is needless to state, well within the realm of possibilities. However, the occurrence of a facial palsy of the peripheral type in members of three generations of direct descendents, may be worthy of more than a passing glance. Philip believes that a congenital narrowing of the stylomastoid foramen in certain persons predisposes them to a compression of the nerve upon any slight congestion of its trunk. Such a theory is not only in harmony with facts incident to the case under consideration, but may also give a clew as to why one attack of facial palsy predisposes to another, and in a certain per cent of cases (7 per cent according to Starr) there is a recurrence of the disease.

## CONCLUSIONS.

From the foregoing statements, the writer feels that the following conclusions may be justified:

1. Bilateral facial paralysis is much more rare than is the unilateral type.

2. While exposure to cold, draughts, localized congestive conditions, infectious and toxic processes, etc., seem to be largely responsible as direct agents in the production of the peripheral type of facial paralysis, the relationship between the nerve trunk and its bony canal (Fallopian aqueduct) may not be altogether a negligable factor.

3. Congenital narrowing or stenosis of the Fallopian aqueduct may be more instrumental as a true basic causal factor in the production of peripheral facial palsy than is commonly believed.

4. Hereditary predisposition to peripheral facial paralysis may be present in some individuals.

407 Equitable Building.

DISCUSSION.

DR. JULIUS GRINKER: The doctor's paper is very interesting, especially in view of the fact that bilateral peripheral facial palsy is rather uncommon; so uncommon is it that about ten years ago I saw a patient who had facial palsy from which she made a slow recovery and upon her return five months later with a facial palsy upon the opposite side, I immediately came to the conclusion that hers was not a Bell's palsy. Upon close examination we found that there was syphilis as the etiology. She made a recovery under mercury and iodine. We know that syphilis is apt to cause facial palsy upon one side and some time later upon the opposite side; and also apt to cause bilateral peripheral palsy. A case I recently saw of bilateral palsy that occurred simultaneously on both sides, I could not help but diagnose as that of bilateral facial paralysis. The lesion was undoubtedly in the neclei and not in the peripheral nerve. Dr. Throckmorton's report is interesting from the point of rarity of the bilateral facial palsy.

DR. ALBERT E. STERNE: I think as we look back over long experience and recall the numerous cases of facial palsy that we have seen, we cannot but be impressed with the fact that by far the larger per cent. are cases which were incident to exposure of some sort. My own experience favors the thought expressed by Dr. Throckmorton, viz., that there is in all probability a congenital narrowing of the stylo-mastoid foramen which predisposes the nerve to undue pressure from any slight cause. I recall very distinctly an acute case which occurred under my own observation of double facial palsy in a perfectly healthy young boy of 15 years, whose father was a sufferer from tabes, and later developed tabes. This was before the Wassermann test. The boy had been on a train and had exposed one side of his face to an open window. He noticed that this side of the face was chilled and when he got to Minneapolis both sides were palsied. I believe that it would be impossible to attribute the incident of double facial paralysis to anything but exposure.

Two other cases I recall of sisters. One sister sleeping near an open window acquired facial palsy; she changed places with her sister and the sister moved to the side of the open window and she acquired facial palsy. There was an anatomic characteristic which made it highly likely that they should be predisposed to an effect of that kind. Just as in Dr. Throckmorton's case, the grandfather and the mother of these individuals may have had a similar narrowing of the stylo-mastoid-foramen which predisposes them to similar effects.

# THE DIAGNOSIS OF INSANITY.

JULIUS GRINKER, M. D.,

CHICAGO.

Professor of Nervous and Mental Diseases, Chicago Post-Graduate Medical School; Assistant Professor Clinical Neurology, Northwestern University Medical School; Attending Physician in the Department of Nervous and Mental Diseases, Cook County Hospital, Chicago.

These remarks are not intended for the specialist in psychiatry, but for the general practitioner. Though often the first to see incipient mental trouble, when recognition might have saved much inconvenience, he is frequently the last one to admit that his patient is insane. In consequence, many a case of true melancholia, hypochondriasis, or even general paresis, is treated as neurasthenia, hysteria, or mere nervousness, and is permitted to remain at large when treatment in a closed institution has become imperative. It is my opinion that the diagnosis of insanity should present no difficulties in the majority of cases, provided the physician takes pains to master some of the essentials of psychiatry. The subject of this paper being diagnosis, I must necessarily omit other aspects of insanity, especially classification and treatment.

*Definition of Insanity.* It is as difficult to define insanity as it is to determine what constitutes sanity. Out of the many definitions published, I prefer the following one for its simplicity: "Insanity is a prolonged departure from the individual's normal standard of thinking, feeling and acting."

The last three psychological terms of this short definition are in need of still further amplification.

1. *Thinking* may be assumed to be made up from:

(a) Sensation—An impression made upon an organ of sense.

(b) Perception—The conscious recognition of the external causes of sensation.

(c) Memory—The retention in the mind of impressions received.

(d) Ideation—The process of grouping percepts together by the aid of memory to form concepts or ideas.

(e) Reasoning—The association of concepts to form judgments, the association of judgments to form new judgments.

2. By *feeling* we understand emotional feeling, the so-called affective moods. An emotion

is an idea accompanied by the feeling of pleasure or displeasure; feeling calls forth desire and desire forms a connecting link between itself and feeling.

3. *Acting or volition* is action prompted by feeling. Such action must be distinguished from action which is devoid of feeling, as the reflexes and voluntary acts which have through frequent repetition become automatic performances.

In insanity either one or all of the mental functions may be disturbed.

Sensation may occasionally be impaired or lost; more important, however, are the departures from normal perception in the form of hallucinations and illusions.

*Hallucination* may be defined as a false perception in any of the senses without an objective reality. Thus, a patient may see, hear, taste, or smell, though no external stimulus is present to produce these percepts. When hallucinations persist they become a positive sign of insanity.

An *illusion* is a false perception with an objective reality. An instance of illusion is the mistaking of the ticking of a clock for the approach of an army, or the shadows of twilight for ghosts. Both illusions and hallucinations occur in the sane as well as the insane; but while the former can correct their errors, the insane sincerely believe in the reality of their false perceptions.

Ideation, reasoning and judgment may be impaired in the imperfect grouping of percepts into concepts, irregular association of ideas, and erroneous conclusions therefrom (delusions).

A *delusion* is a false belief or judgment caused by disease, a judgment which cannot be accepted by people of the same class, education, race and age of the person who expresses it. From this definition are excluded the beliefs due to faulty education and environment, such as a belief in the existence of witches which is still current among certain primitive peoples.

*Memory*, the *emotions* and the *will* are more or less unequally impaired in different types of insanity, being constantly referred to in the description of the various psychoses.

To make a *diagnosis* of insanity not only must we ascertain the family and personal history from friends and relatives and from the patient himself, but we are obliged to make a careful examination of the patient's mental status. Though the taking of the history differs in no essential from the history-taking of other diseases, the mental examination is radically different from that for physical disorders. Insane patients do not usually assist their examiners—believing themselves well, or fearing detention in an asylum. Those who are willing are often unable to co-operate with their physician.

In eliciting information on the family history and of happenings to the patient prior to the development of symptoms, it is imperative to enter into numerous details, as there exists an unwillingness on the part of relatives and friends to voluntarily communicate what to them are family secrets, facts that may stigmatize the family as neurotic or psychotic.

Having so to speak uprooted the family tree, we proceed to carefully scrutinize the patient's personal antecedents. Was he born in normal labor, was his mental and physical development during childhood normal or otherwise? These and other questions are asked and the answers recorded. The entire school life is then analyzed with reference first to the acquisition of knowledge; next, with regard to the patient's habits of thought and his usual reactions to the environment,—was he reserved or communicative, social or asocial? What was his favorite pastime; what were his day-dreams?

Being in possession of these data, obtained from reliable sources, we are in a position to pursue our inquiries with reference to changes in the patient's character. Such changes may be manifest by complete reversal or pathologic accentuation of certain normal traits. For instance, a man who had always been of good habits may through incipient mental disease become a prey to all sorts of excesses; an avowed agnostic may suddenly take to church-going; a man formerly aesthetic may become lewed in speech and action.

After all possible information has been elicited from friends and relatives, the patient himself is engaged in conversation. One may begin by extending the hand and bidding him the time of day. The patient's handshake is often significant of the mental affection; the maniac, melancholiac and the dement, each has a different manner of grasping the examiner's hand. In the case of a refusal to shake hands, the reason is demanded. Something may be learned from the alleged reason. Next, an inquiry is made into the state of his health, considering him as one who is phy-

sically ill and whose digestion, circulation or respiration require medical attention. Many an unwilling patient has by thus becoming accustomed to the physician's presence yielded up valuable data, which he would have refused to disclose had the mental examination preceded the physical.

The *objective examination* differs in no wise from a regular neurologic examination and includes the investigation of reflexes, sensation and motion. During the examination we observe the mimicry, the state of consciousness, whether the patient is somnolent, stuporous or comatose. The facial expression may be that of sadness, grief, anxiety (melancholia), euphoric and exalted (mania), despondent, anxious, helpless (confusional insanity), mask-like, fixed, grimacing (catatonia), proud, conceited (paranoid state), humorous, jovial (alcoholic), dull and listless (dementia). We may discover ocular palsies, facial asymmetries, tremors and other signs indicative of the organic insanities. The attitude may also give some indication of the patient's psychology. In addition the gait may be of the spastic, ataxic, or of the steppage variety, showing organic disease of the nervous system, or it may merely appear peculiar. Depressed patients, for instance, take small steps; their walk is aimless and hesitating, while paranoids and sufferers from delusions of grandeur have the step of self-consciousness. The affected gait marks the catatonic, while the hebephrenic indulges in peculiar mannerisms besides.

*Conduct.* An individual whose behavior is like that of a normal person, is either sane or in the midst of a lucid interval. There is something suggestive in the conduct of the insane for the various types of mental disorder. For instance, the dement appears to take no interest in his surroundings, the maniac is always busy and easily diverted by mere trifles occurring in his environment, which cause in him ever changing associations of ideas with the most diverse psychomotor activity. The paranoiac, suspicious, reserved, reasoning, threatening and always self-conscious, differs radically in his conduct from the alcoholic dement, for instance, who manifests a degree of cordiality seldom noted in other mental disorders.

*State of Consciousness.* Observations are made as to whether a patient is wide-awake, somnolent or stuporous, dreamy, preoccupied, or confused.

*Orientation.* Patient is requested to name the location, time of day, month and year, and his relation to the outer world, his conception of recent events, etc. To bring out the facts of orientation and memory, a set of questions is used, the answers to which are recorded and compared with those given at a subsequent examination.

*Psycho-sensory Disturbances.* In the diagnosis of mental disease it is essential to determine the presence or absence of illusions, hallucinations, or delusions based on these.

*Affective Life.* The patient's emotions are next analyzed. Is the prevailing mood that of sadness, indifference or of exaltation, irritability, happiness?

The sum and substance of the foregoing remarks is that *a prolonged departure from the normal mental functioning peculiar to the individual is the most certain sign of insanity.*

Having outlined in a general way the methods whereby we arrive at the conclusion that a certain individual is mentally unbalanced, it becomes necessary to briefly review the essentials of the most important symptom-complexes found in the realm of psychiatry. Of these it will only be possible to take up the syndromes, melancholia, mania, paranoia, and dementia.

1. *Melancholia.* In this symptom-complex the point of departure consists either in pathological depression of the emotions or—what amounts to the same thing—in pathological heightening of the painful moods.

The patient is sad without adequate cause; everything appears gloomy; the love for wife and children has changed into indifference, and life has ceased to have any charms for him. Being certain that this condition will remain permanent, he feels that the fault is all his own, having committed an enormous crime or being guilty of the "unpardonable sin." Unlike the paranoiac, who blames others for his misfortunes, the melancholiac reproaches himself for his troubles and suffers indescribable mental tortures, from which he eventually seeks to escape by the easy road of suicide. So great is the tendency to self-destruction that every case of melancholia of whatever degree or intensity, must be looked on as a potential suicide. Many a valuable life has been blown out because the attendant has failed to take due cognizance of this fact, though everyday experience brings home the sad truth that melan-

cholias often succeed in their attempts at suicide in the face of the most careful precautionary measures to prevent the same. Orientation is intact in the majority of the cases, while the judgment is usually faulty. Illusions and hallucinations are present in some and absent in other cases. The syndrome of pathological mental depression may occur in several distinct varieties of insanity.

2. *Mania.* In this psychosis there is acceleration of the flow of ideas, accompanied by great excito-motor activity with exaltation of the emotions, the exact antithesis of melancholia. There are all varieties of mania from the mildest type consisting in mere exhilaration of the emotions with a tendency to talkativeness and great activity to the most violent types of delirium terminating in homicide. The patient is constantly active, talks incoherently and is easily diverted by trifles in his vicinity. Ideation and reasoning are at fault, the associations of ideas are loosely joined, being influenced largely by superficial resemblances and mere appearances. Assaults and homicide are the two great dangers.

3. *Paranoia.* The primary element in this psychosis is a disturbance of the laws of association of ideas resulting in deficient judgments. The most characteristic symptom is the presence of systematized delusions. The last may be of the ambitious variety, so-called megalomania, or they may belong to the depressive type, the delusions of persecution. In many instances both types are encountered either simultaneously, or they appear in succession. Many paranoiacs are able to carry on the business of life without arousing any suspicion as to their sanity; some, indeed, have become famous for certain persistent activities, being prompted in their efforts by the delusions which dominate them.

The paranoiac, like the genius, is born not made. Years before the onset of symptoms peculiarities of conduct have been noted; they are strange in manner and dress, shun society because of a feeling they have that they are different from others and even superior to the rest of mankind. When delusions first make their appearance, they are rather indefinite and vague in content; as time goes on, they become more systematized and assume fixed shapes. Paranoiacs usually reason correctly on matters other than their particular delusion; they seldom become asylum patients, being sufficiently clever to hide their insanity. When they succumb to the intensity of their delusions and are at last detained for reasons of public safety, they generally constitute the aristocracy of the asylum population. Many of these patients, instead of becoming asylum inmates, have founded new religious sects or have initiated great reform movements. They are the typical "cranks," mystics and dreamers, with visions of great truths destined to revolutionize the sciences and arts; many of them spend their lives discovering the perpetuum immobile and constructing air ships that shall reach the neighboring planets. Though thoroughly convinced of the correctness of their views, they seldom find a credulous public to assist them in the realization of their gigantic schemes. What is more likely than to assume the existence of a great conspiracy, the aim of which is to prevent the accomplishment of these projects? Upon the delusions of greatness are therefore erected the delusions of persecution. At this point in the evolution of the disease, while smarting from the evil machinations of their supposed enemies, they plan to revenge themselves upon the conspirators; now they become dangerous to society, and homicide often leads them directly into the insane asylum, when a lunacy commission's verdict might have accomplished the same thing. How little understood this disease is even among the medical profession may be gathered from the fact that it is extremely difficult if not altogether impossible to convince physicians that a paranoiac is really insane. Is it any wonder that juries with the most primitive notions on what constitutes insanity can seldom be induced to send a paranoiac to a state institution?

4. *Dementia.* This term indicates enfeeblement of the mental faculties of a mind that was once normal. It is by the fact that the mind of a dement was normal once that dementia differs from idiocy and imbecility, both of which terms signify that the mind has never developed. Mental enfeeblement, dementia, may be the end result of many forms of insanity, but as a disease entity it is seen first in the variety occurring early in life, so-called dementia praecox; secondly, in that form having syphilis as a cause, paresis; thirdly, in the dementia incident to senility, senile dementia; and fourthly, in the dementia

caused by organic disease of the brain, organic dementia. The recognition of dementia is not difficult. As the term indicates, there is a diminution or loss of one or more faculties of the mind, the judgment, voluntary attention, will and memory. Patients affected with dementia have lost the power to concentrate their attention, suffer from inhibition of their wills, a lack of judgment, and often execute the most grotesque and bizarre movements and gestures. The variety seen in individuals at the age of puberty or early adolescence, *dementia praecox,* appears to be the expression of an early mental bankruptcy, and is analogous to the early local death of a physical organ.

*General paresis, paretic dementia,* is both a neurologic and a mental affection. It is diagnosed from the numerous neurologic signs and the marked mental deterioration occurring in an individual who has passed through a syphilitic infection. In doubtful cases, the Wassermann test, practically always positive, enables the diagnosis to be made. The deterioration in this disease is steadily progressive and affects the judgment, memory and the esthetic sense; its duration is from two to three years, though instances are recorded in which the disease has lasted eight to ten years.

The mental signs of *senile dementia* are similar to those of paretic dementia, but the substratum is found in the senile arterial changes, causing a gradual obliteration of the most recently acquired and least organized mental acquisitions. The patient usually lives in the past and can see nothing of interest in the present, has no memory and in a general way seems to be returning to the mental condition of childhood.

In conclusion I may state that though many forms of insanity do not exactly fit the descriptions given, yet I believe that most forms of insanity will be found to present a symptomatology similar to some of the types described, and if the essentials of these have been well-digested there should be no difficulty in making a mere diagnosis of insanity regardless of the refinements of classification, which must after all be left to the specialist in psychiatry.

25 East Washington Street.

DISCUSSION.

DR. SOLOMON: I would like to say a few words with respect to the use of the term "insanity." Just as we no longer speak of epilepsy or apoplexy, but of the epilepsies and apoplexies, so we do not speak of insanity alone but of the insanities. Insanity, however, is purely a social, a legal phrase; it is not a scientific term. Insanity means that degree of the disorder of the mind which makes the individual unable to get along to such a degree that he should be confined to a hospital for the mentally disturbed or, as we refer to it, for the insane. Therefore we have a great variety of mental disorders, which are, from the legal standpoint, on the borderland between sane and the insane. Insanity therefore is not a medical phrase, it is a legal one. Many of the mental disorders are not grouped among the insane for the reason that insanity is a degree of disorder. It is simply an exaggeration of disorder to an extreme so that the individual is unable to hold his own in the community and to such an extent that he should be confined and looked after until he recovers. if he does. Hysteria and neurasthenia are disorders of the mind but we do not group them among the insane for the reason that the disorder is not of such a degree that they are unable to hold their own in the community. If we appreciate then that the term insanity is really an obsolete one, or if we use the term, remember that it is purely a legal phrase and has reference to a class of the mentally disturbed we will have a better conception of the question of the mentally abnormal and the normal. The difference between the psychoneurasthenic and the one who is insane is one of degree absolutely. The psychoneurasthenic is one who has merely hysteria, or one who has psychoneurosis. His disorder is in the sphere of the mind but he is able to hold his own. He is able to look after affairs to a degree which does not permit us to class him among the insane. We must remember, however, that in the so-called psychosis and psychoneurosis, the fundamental question is a question of the mind. The disorder of the mind, insanity, is simply that degree of mental disorder which causes us to feel that the individual cannot get along in the community alone and is irresponsible and should be sent to a hospital where he will be protected and the society about him.

DR. ALBERT E. STERNE: I find myself completely out of touch; so much in disharmony that I cannot refrain from speaking on the subject. I have no doubt that Dr. Grinker's paper finds its place, even in an association of this kind, because it emphasizes certain things that everybody knows. What Dr. Solomon has said is very apt and goes a little bit further, but there again the crux of the situation as it presents itself to us is not met. Gentlemen, the difficulty is not in the recognition of the conditions of so-called insanity which are spoken of in the paper or even by Dr. Solomon. Those cases are recognized The difficulty that presents itself, as far as I can see it, is that the family and the friends of these individuals who are mentally disturbed, who are in a state of inadaptation to their surroundings, fail to

note the early signs of the trouble. They send them up to commitment when they cannot take care of them any more. The time having passed when they should have received attention. The difficulty is not in the recognitions which bear ordinary earmarks; they are easy for the laymen; the difficulty is in recognizing conditions early enough as states of physical illness which have a certain mental expression which is abnormal. Mind separable from matter is inconceivable and when there is an abnormal mental expression, there is an abnormal physical condition at the base of it every time. Now, when this physical condition reaches a point where anyone can recognize it it is too late for the welfare of that individual —it is difficult for even the most expert of us, I mean the whole medical profession, the men who deal with these conditions day in and day out, to satisfy themselves in some instances of the patient's condition. That same difficulty presents itself early in the ordinary case. These individuals are sick; they must be recognized as sick individuals just as we recognize the early recognition of any other kind of disease. We are preaching for the early recognition of this, that and the other thing. We can recognize mental abnormalities just as readily. It is always on a physical basis.

Dr. Throckmorton: If there is any class of insanity with which the general practitioner comes in contact most, it is usually those of aberration which is due to toxic processes; we know that in delirium we usually have a history of some toxin, whereas, on the other hand, the maniac gives a history in which hereditary influences are present, I should say in 80 per cent. of the cases. We know that in mania there is a tendency to recover, yet there is always that tendency to recurrence.

Dr. Grinker (closing): I am glad my paper, although elementary, elicited some discussion, some controversy. I believe that the members of this association should give each other a little of that mutual admiration which is really due them. They invite the public here; they invite nurses, general practitioners, and they have men and women here to whom they talk Greek. I believe that some of the papers are of the elementary type. I am not speaking of the hour of the early recognition of insanity; that is not my topic at all. Let us recognize those things which everybody should recognize and that is why I brought up the A B C, because some of us are in sore need of it. I, too, have listened to eminent alienists who present clinical cases and yet made wrong diagnoses and wanted me to swallow it—I didn't do it. I think we can do nothing better in addition to coming here than to recognize the earliest types of the mental behavior of the individual towards his environment and also, here and then, tell the people what everybody should know, as well as his own five fingers.

## AN EXPERIENCE IN PEDAGOGY AMONG THE CHRONIC INSANE.

Edward F. Leonard, M. D.
Instructor in Neurology, College of Medicine, University of Illinois. Formerly Assistant Physician, Jacksonville State Hospital, Jacksonville, Ill.
CHICAGO, ILL.

I was assigned as assistant physician to the Jacksonville State Hospital at a time when there was an awakening as to the manner of treating the insane in the care of the State; and soon found I had entered a field of work containing interesting and instructive features, as well as sad ones. It was only with the passage of time, however, that I came to a realization of the necessity of seemingly ignoring the mental defects of the unfortunates under my care, and treating them more as if they were normal.

As I became better acquainted with my patients, I was attracted to one in particular. He was an unusually obstinate patient, resisting every effort to make him follow the general routine of the ward. At night he would refuse to undress, claiming it was a habit of his when he was on the road to sleep in most of his clothes, in order to be able to catch a train quickly at any hour of the night. This made it necessary for the attendant to undress and dress him; then he would refuse to go to meals, and the attendant had to lead him to the table.

At times I was able to draw him into conversation; again he would pay no attention to me, and seemed swayed by some fear. Gradually, however, his confidence was gained, and by taking magazines to him and pointing out interesting articles he was later drawn into discussion of them. This was not an accomplishment of a day; it took weeks and months of patience and coaxing, as he had been an inmate of the hospital for over five years.

He still had his moods of depression, and, much to my surprise I found him one day surrounded by a group of patients who were listening attentively to his reading and explanation of a magazine article. It is problematical at times to amuse insane patients, and as a rule little can be done beyond the weekly dances, services at the chapel, ball games and the holiday entertainments. Therefore, it was not long until the reading circle grew to large proportions.

A noticeable improvement was now observed

in this hitherto morose, obstinate patient, and I felt that if he had more to occupy his time he might further improve, and suggested to him the starting of a school among the other patients in his ward. After some coaxing he agreed to the plan. Through the co-operation of the superintendent a large blackboard, some slates and pencils were secured; and after some scouting around a motley array of readers, grammars, geographies and spellers were collected, and our school was started.

An unusual school this was, composed of insane patients, and taught by a patient; in fact the first school of its kind in the West, I have been told. Very methodically was this school conducted; the bell being rung regularly at eleven in the morning, and the class was dismissed at twelve. The afternoon session was called promptly at two and lasted until three; and the curriculum included arithmetic, grammar, spelling, history and geography, in addition to short readings from standard authors every day.

Comparatively few of these patients had much previous education; but this did not lessen an observer's sense of pity at the sight of grown men going to the blackboard and puzzling over simple sums—sums that a boy of ten would laugh at.

It was marvellous to see how much in earnest the teacher-patient was in this new work. Not satisfied with marking and grading his pupils conscientiously each day, he soon instituted the giving of oral and written examinations at regular intervals.

I was frequently called upon to address the school, and at such times made it a point to praise the work of the pupils and the improvement they were making. For it was the rule of the school that every pupil should be neat; and the attending patients became very eager in their striving for clean hands, carefully combed hair and well-brushed clothing, where there had previously been an utter lack of thought as to general appearance; and the change was indeed surprising. Then, too, it became a common sight to see quite a number of the patients practicing writing exercises and studying lessons between school hours.

As the months passed the monotony of the school work was at times varied by the appearance of outsiders to give a musical and literary program. Then a library was gradually acquired, which was patronized far beyond our expectations; for this ward had previously been hard to interest even in the daily newspaper.

To an outsider this work may seem trivial, and some might even intimate that after the novelty of the school wore off the patients undoubtedly lost interest. This was not the case. A year passed; the school was still in full swing; our teacher-patient was so improved that he was given a parole; there was an air of alertness and interest in the ward; the patients were easier to control; and instead of losing interest, watched the clock impatiently for school time, many taking their places before the sound of the bell.

By this time it was unnecessary for me to take the initiative, for the teacher had gradually taken full charge of the school, and was constantly making suggestions and innovations, one of which was the monthly spell-down which caused great amusement and friendly rivalry. As a teacher he seemed imbued with an insatiable desire to be doing something, and one day asked permission to start a singing class during the hour between supper and bedtime. For a time this hour of song was conducted without the aid of a musical instrument; but so many patients seemed to have a fondness for different keys, regardless of the written music, that the result was rather harrowing, and this branch of education was on the verge of oblivion when the superintendent gave the ward an organ. Then we found that one of our epileptic patients was capable of filling the important post of organist, with the result that we were able to at least drown some of the discord. Later, enough latent talent was found among the patients to form a quartette, and the singing hour gradually became one of the delightful hours of the day. Our chorus might not have passed muster before a group of musical critics, I'll admit, but it served the purpose of giving pleasure and forgetfulness to those participating.

When the singing school was in good working-order, we thought our teacher would be willing to rest on the oars of accomplishment; but he was not. For in a short time he agreed to conduct a religious service in the ward on the Sabbath; and soon a typical Sunday school was under way, our untiring patient filling the triple

position of teacher, superintendent and preacher. The regular Sunday school lesson course was followed, and the scholars of this school were not far behind the normal scholars of a regular Sunday school in memorizing verses of scripture.

As I said previously, this was not accomplished in a few weeks or months; and it was not until the second year that the idea of improving the bodies as well as the minds was taken up. Then a class in physical culture was started, and the patients were put through a regular course of exercises every morning greatly to the benefit of their bodily health. This class was started during the summer months, at a time when most of the patients spend several hours each day on the lawn. So, to combine these beneficial effects with amusement, contests, races, etc., were entered into, much to the interest of those who did not care to take part. This work drew into the class many patients who could not be induced to attend the regular school.

The last, but not least interesting, work undertaken was the organization of a secret society among the student patients. The initiation fee of this society was not money, but the attainment of high marks in school, and only those who reached a certain mark—one given for neatness as well as scholarship—were eligible to membership. By-laws were drawn up; patients were voted on for membership, and a day was set aside for initiation. This initiatory work consisted of blind-folding the applicant, then making him crawl between the legs of a row of patients, and administering a few light blows on the back with a pillow, after which he was given the obligations and made a full-fledged member of the society.

Though this school was held in one ward, the interest was not confined to it; for patients in other parts of the hospital asked to be allowed to attend; and after a time our teacher consented to pay short daily visits to several other wards. Then, too, the school became an object of interest to visitors who came to the institution.

The work was in progress for about four years, and not once during that time did the interest flag. Some may ask if it proved permanently beneficial. I can only say that many of the patients who attended the school showed such improvement that they were allowed to go home; and our teacher-patient was discharged from the hospital as recovered, and is now earning a good living for his wife and children; and the ward in which the school was held changed from a moderately violent ward to one of the best in the hospital.

Was not the effort worth while?

## THE PATHOLOGICAL CHARACTERISTICS OF THE HABITUAL CRIMINAL.

PAUL E. BOWERS, M. D.

First Lieutenant Medical Reserve Corps, U. S. A., and Physician in Charge Indiana State Prison, Michigan City, Ind.

MICHIGAN CITY, IND.

Ever since Cesare Lombroso published his monumental work "L' Uomo Delinquente," the students of sociology and criminology have been waging constant warfare for and against the conclusions and deductions made in this famous volume.

The question as to whether there exists a "criminal type" of man continues still to draw heated controversy.

Criminal anthropology seems to have been constantly misunderstood because there has been a confusion between the "technical value of anthropological data concerning the criminal man and their scientific function in criminal sociology." The real function of criminal anthropology is to determine whether the criminal is normal or abnormal, to learn the nature of his abnormalities and to ascertain whether or not they are of such a nature as to respond to treatment and correction.

The subject matter contained within this paper is the result of the intensive clinical study and daily observation of the habitual criminal. It is not merely the statement of preconceived or prejudiced private opinion or quotations from criminological authors.

In studying the habitual criminal we are confronted with two very definite schools of opinion as to what are the essential factors that produce him. One class of criminologists have definitely charged his psycho-physical construction with being the chief element in his production; that his criminal and anti-social tendencies are the expression of biological caprice; that he is unalterably destined to commit crime no matter what his environmental circumstances may be. In brief, if an individual is criminal, he was born so to be.

The other class of criminologists entertain be-

liefs diametrically opposed to the above; they deny that the criminal is born, that he inherently possesses the qualifications for crime, but claim that he is an outgrowth of the defects of the social fabric, that his existence may be charged to unfavorable economic, political and evolutionary states of the social body. This opinion is briefly stated in the words of Lacassagne, "Society has the criminals it deserves."

After several years association with criminals of all types I have become convinced that the prison populations are composed of deteriorated and defective individuals who fall below the average physical and mental standards. I am also convinced that we do find the stigmata of degeneration among prisoners with greater frequency than in equal numbers of civilians living at liberty. It must be borne in mind, however, that we are not justified in classing an individual as a degenerate merely because he possesses a single physical or mental defect. We can say with certainty if we find many physical and mental anomalies in an individual that he is subnormal and his organization is defective. All degenerates, however, are not criminals for in this class is to be found the insane, the cranks, freaks, sexual perverts, beggars, prostitutes, ill-balanced geniuses, hysterics, imbeciles and idiots.

*General Considerations.* The following data have been gathered from the study of one hundred recidivists, all of whom have been convicted not less than four times. My investigations have been confined to the clinical study of the problem and the sociological aspects were not touched. The following table will doubtless be of interest.

| | |
|---|---|
| Number of convictions | 697 |
| Number of years served in prison, exclusive of time served in jails and workhouses | 1,221 |
| Number admitting the use of alcoholic beverages to excess | 94 |
| Number professing some form of religion | 83 |
| Number admitting having had gonorrrhea | 74 |
| *Number admitting having had both gonorrhea and syphilis | 65 |
| *Number admitting history of mental defect in immediate family, including insanity, feeble-mindedness, epilepsy and crime | 56 |
| Number admitting history of tuberculosis in immediate family | 41 |
| Number of prisoners having had tuberculosis at some time | 12 |
| *Number of prisoners admitting the use of narcotic drugs, such as morphin and cocain | 8 |

MENTAL STATUS OF 100 RECIDIVISTS ASCERTAINED BY PSYCHIATRIC AND PSYCHOLOGICAL EXAMINATION.

| | |
|---|---|
| Insane | 12 |
| Feeble-minded | 23 |
| Constitutional Inferior | 38 |
| Psychopaths | 17 |
| Epileptics | 10 |

*The number is greater than admitted.

EDUCATIONAL STATUS OF 100 RECIDIVISTS.

| | |
|---|---|
| Common School | 18 |
| Less than Common School | 75 |
| Illiterate | 7 |

It is easy to see even from the most superficial glance at these figures that these 100 habitual criminals were defective. This is especially noticeable when we stop to think that seventy-five of them did not even reach the eighth grade and that seven were entirely illiterate. Some objection may be offered against this conclusion, but this is easily overcome by the fact that opportunities for education were good in the majority of these cases. The real cause of the lack of education was the inability to assimilate that which was taught them because of mental defect and such physical conditions as poor eyesight, adenoids, defective hearing and a disinclination to study, coupled with a condition of incorrigibility.

At least fifty-six of them bore the burden of some neuropathic taint which bequeathed to them an instability of the nervous system and a sensitized physical economy for the action of degenerative influences.

The majority of the men studied were in a condition of physical insolvency, more or less. Seventy-four admitted having had gonorrhea with the train of symptoms and sequalae that follow this dangerous infection such as gonorrheal rheumatism, strictures, defective vision and in one instance a heart lesion; 65 of these 74 cases of gonorrhea had syphilis in addition, the most dread of all diseases to which human flesh is heir. Twenty-five per cent of all persons in insane hospitals are there due to the direct and remote effects of this disease which forever blights the person that has felt its sting.

Many remedial physical defects were found among prisoners which had directly or indirectly contributed to crime. In the year 1911 I refracted more than 300 pairs of eyes for relief of visual defects. Defective vision may directly lead to truancy and truancy often leads to deliquency. The headaches of eye-strain have led to the excessive use of alcoholic liquors and drugs in the false belief that relief could be obtained.

About 60 per cent of the men suffered from flat feet and a large number had some degree of phimosis.

What was the role of alcoholism in these cases? The part it played was that of a contributing

factor and not the immediate cause of crime. It served merely to intensify the defect already existing; it weakened already enfeebled volitional powers; it was influential in firing misguided, wild and erratic emotions; it distorted previously inefficient, irrational judgments, in fact, it raised to the n'th power all the potential and latent elements for criminality. The same may be said of morphin and other narcotic drugs.

*Insane Habitual Criminals.* The twelve men classified under this division had for the basis of their crimes some form of insanity. As to whether these men were actively insane at the time of the commission of their criminal acts I cannot say, but it is very reasonable to suppose that their insanities must have existed in a latent form at least. Many times crimes and misdemeanors are but expressions of mental disease and it is a sad commentary on the medical and legal professions that insane individuals are incarcerated in prisons merely because they are suffering with a form of mental disease.

All forms of mental alienation are found among prisoners, but the chief varieties observed among recidivists are dementia praecox, epilepsy, paranoia and paranoid states, manic depressive psychosis and hysteria.

"Wilmanns, in a study of 127 vagabonds, found 66 cases of dementia praecox."

The alternate cycles of good behavior and freedom, crime and imprisonment which I have noticed in habitual criminals somewhat resemble the manic depressive psychosis with its intervals of lucidity, separated by periods of depression and excitement. In the period of remission of the cyclic form of criminality the prisoner is exceedingly well behaved and often takes a very active part in the religious services and societies at the prison, and often this individual is thought to have been reformed and that he will become a model citizen. He is often discharged for this reason alone and he does exceedingly well on his parole for a limited period of time. But shortly the reformers' hopes are dashed to the ground, for a second cycle of criminality develops, new crimes are committed and the individual is returned to the prison from whence he came or is sent to some institution in another state.

No greater proof is needed to substantiate the claims that the habitual criminal is defective than an examination of the type of prisoners who are found in our hospitals for the criminal insane. Of 107 men I transferred from the Indiana State Prison to the Indiana Hospital for Insane Criminals, 102 were habitual criminals. These men had spent the greater part of their lives in repeated conflicts with the law.

They repeatedly violated the rules and discipline of the prison and it has become so apparent even to the non-professional officers of the institution that men who are continual disturbers of prison order are always held in suspicion as being mentally unbalanced.

Our present deputy warden in a spirit of justice and progress, asks the prison physician to pass on the condition of sanity and responsibilities of those brought before him to be disciplined, and we found that not less than 85 per cent of these men present some condition of mental defect or insanity.

Of the last convictions of one hundred and sixty-nine prisoners in the insane department of the state prison, 28 of them were convicted of murder, 17 assault and battery to murder, 6 of manslaughter, 8 of rape, 7 of assault and battery to rape, 5 of sodomy and 21 of burglary.

It is evident from the foregoing table of crimes that the persons who committed them were of a degenerate nature. The insane criminals are recruited from the ranks of the recidivist and cases of recovery are exceedingly rare because of the fact that their insanities are developed on fertile and degenerative soil.

*Prisoner of the insane type.*—White male, 54 years of age, sodomist: family history obtained unreliable; has used alcohol to excess since a young man; has had gonorrhea and syphilis. Since 20 years of age he has tramped and hoboed about the country. His wanderlust is the direct reaction to paranoid beliefs; his wanderings were the results of his attempts to escape the charges of electricity by means of which he thought Edison was persecuting him. He avoided large cities because of the presence of many telegraph and telephone wires; he often left places of employment without waiting to collect the wages due him. On one occasion he went to Orange, N. J., to gain vengeance on the inventor for the torture he was enduring at his hands. He assaulted the janitor who prevented his gaining entrance to Mr. Edison's office and for this assault served several months in jail.

This prisoner skilfully hides his delusions of per-

secution and it is only by the most careful psychiatric examination that his delusions can be elicited.

*Feeble-minded Habitual Criminals.* I classed twenty-five per cent of the habitual criminals that I studied as feeble-minded. In the employment of the term "feeble-minded" I have endeavored to limit its application to the definition formulated by the American Association for the study of the Feeble-minded which is, "All degrees of mental defect due to arrested or imperfect mental development as a result of which the person so affected is incapable of competing on equal terms with his normal fellow, or of managing himself or his affairs with ordinary prudence."

Various estimates have been made by different physicians and psychologists as to the number of feeble-minded persons in penal and reformatory institutions. This number has varied from 20 to 60 per cent and the apparent difference can be easily understood when we consider the various natures of the institutions giving this data and the general broadness or narrowness of the psychopathological examination given.

Dr. Walter E. Fernald has stated:

"At that rate we should have 20,000 such individuals institutions are mentally defected and belong either to the feeble-minded or to the defective delinquent class.

At that rate we should have 20,000 such individuals in adult prisons, and 6,000 in juvenile reformatories, making a total of 26,000 defective delinquents in actual custody not to mention those who have never been arrested and the large number who have been discharged or paroled from institutions and are now at large. There are doubtless as many defective delinquents at large as there are in custody."

The feeble-minded are not in themselves inherently criminal or anti-social. Being easily influenced and unable to control their actions because of their utter defect of perception, reason and judgment, they become the unconscious tools of perverse and anti-social individuals, evil environments and associations. The gross form of feeble-mindedness is easily recognized and its existence is rarely disputed, but the great danger and difficulty lies in the recognition and the proper care for the high-grade feeble-minded persons.

The feeble-minded are subject to attacks of depression and exaltation and their mental equilibrum being very unstable, the baser elements of their natures assert themselves at such times and this is shown in deeds of violence.

*Type of feeble-minded criminal.*—White male, 21 years old, murderer. Physcial examination reveals the presence of general stigmata of degeneration; head is of the doliocephalic type, face asymmetrical, Darwinian tubercle on both ears, palate is high and sharply arched, marked malocclusion of the teeth.

This prisoner freely discusses his crime and he tells without remorse or shame how he killed a fellow prisoner that he might be transferred from the reformatory to the state prison where he would be permitted to use tobacco.

Mental examination shows this prisoner to be a high-grade feeble-minded person. He passed with ease the Simon-Binet measuring scale of intelligence. This fact proves to the author's mind that this test inadequately reveals mental defect, for it fails to show quantitative and qualitative defects of judgment and it does not measure or diagnose the efficiency of an individual's reaction to his environment. A psychiatric test was necessary to determine his condition.

*Constitutional habitual criminals.* The largest single group of the habitual criminals that I studied may be classified under the term "constitutional inferior." The term is self-explanatory. While the individual of this group is not feeble-minded in the strict sense of the term, he is below par both mentally and physically. He is unable to stand the strain imposed upon him by the ordinary conventions of society; without assistance he cannot occupy the place that he should in the social order. Indecision, inability, vacillation and dependence are his chief characteristics; he readily takes to every vice that comes across his path, indulges in prostitution, he falls an easy victim to the drink and drug habit, his mental operations are slow, reason and judgment are defective. The constitutional inferiors possess an unsatisfied craving for continual and unusual excitement, and in their impetuous endeavors to secure it they live on the borderline of insanity and criminality over which they are swept back and forth by the force of tempting circumstances in which they often find themselves; in them the call of the wanderlust is particularly strong; they travel from place to place and the railroad employes and detectives in particular can testify to this fact. With the coming of warm weather hundreds of them are traversing the continent in search of contentment which leads them in a never ending chase. Many of them are convicted of petit crimes and a very common one

for them to commit is the breaking of box cars to secure food and small plunder.

The treatment to be attempted in this class of cases is the removal of these physical conditions brought out by dissipation and venereal disease, removal from vicious environment and associates, reeducation and tactful direction of their thoughts and activities into channels of usefulness. If it were possible to transform their restlessness and unproductive activity, and if employment could be secured that would in a measure afford them continued novelty and excitement, their rehabilitation might be expected if it were not for their neuropathic organization.

*Prisoner of the constitutional inferior type.*—White male, age 42 years, reached third grade in school; was truant and incorrigible and says he didn't care to learn; wanted a job to make money. Has drunk liquor since 18 years of age; has been convicted three times of larceny and once for assault and battery with intent to rob; has been paroled twice on last sentence and has failed to make good.

He has had gonorrhea and syphilis; ptosis of right eyelid.

This prisoner says society has forced him to be a criminal and that his present conviction was due to the fact that he was "out of luck." His brother is also a criminal.

*The psychopathic habitual criminals.* The class designated as psychopaths form 22 per cent of the total number studied. These are a group of individuals who may be said to be semi-insane or semi-responsible. The following is a description of the psychopath by Dr. Parker. "In the psychiatric sense he is neither flesh nor fowl, neither sane nor insane, and he is a dangerous individual at every stage. He is bright, responsive, reactive and in varying degree pretty adaptable for certain periods. He is anti-social, either for sudden periods or persistently."

There are individuals who display many eccentricities of character and of conduct, but which seem to be no departure from the individual's usual manner of feeling, thinking and acting, nor are these traits sufficient as to warrant calling the individuals insane who possess them. Yet these characteristics in question hinder the efficient adjustment of the individual to his environment. It is noted that insanity is a very frequent development in these cases. They have been graphically described by Régis as follows:

"Their lives are one long contradiction between the apparent wealth of means and poverty of results. Within this class are found the moral imbeciles." "A group of persons of unsound mental temperament who are born with an entire absence of the moral sense, destitude even of the possibility of moral feeling; they are as truly insensible to the moral relations of life, as deficient in this regard as a person who is color-blind is to certain colors, or as one without the ear for music is to the finest harmonies of sound. Although there is usually combined with the absence of moral sensibility more or less weakness of mind, it does happen in some instances that there is a remarkably acute intellect of the cunning type."

Sexual perverts of the most disgusting type were found among the psychopaths and no small number of them are met with in all penal institutions and they indeed furnish very difficult problems to be solved in those prisons where it is necessary for lack of room to put more than one prisoner in a cell.

Whether these anomalies of the sexual instinct are always congenital or not, has not been settled and it does seem that inverse and perverse sexual habits can be acquired early in life by the association with vicious and depraved individuals. They are, at any rate, an exceedingly dangerous and demoralizing class which should be permanently isolated to prevent their mingling with others. Murder has been the outcome of sadistic practices.

*Psychopathic criminal sexual pervert.*—White male, 26 years of age, last crime committed, uxoricide. Prisoner's paternal grandfather insane; father has been an inmate of a hospital for the insane for the last 22 years. Prisoner reached 8th grade in school; has used alcohol to excess since 18 years of age. Practiced masturbation since 10 years of age. Had sexual intercourse for first time at 14 years of age with a girl 4 years his senior, who was menstruating at the time.

After his first sexual congress he was always sexually aroused at the sight of blood—he often watched his mother kill chickens in order to be sexually stimulated. He was married at 19 years. He found that intercourse at the menstrual period gave him more pleasure sexually than at any other time. Prisoner tells the story of his crime in a frank and unhesitating manner.

One evening he had a quarrel with his wife accusing her of infidelity. In the course of the quarrel he threw her to the ground and in doing so he stumbled against an iron pipe which he used as a weapon to crush her skull. He informed the examiner in a glib and easy manner that each time he struck his wife he felt an erection taking place and for the satisfaction of his sexual passion he continued to strike her until she was dead. He then secured a razor and severed the head from the body. This act and the sight of blood gratified him intensely and he desired

very much to have intercourse with the dead body, but circumstances were such that he hesitated to commit the act of necrophili, lest he be caught, which exposure he would have regarded disgraceful. But he did not regard the murder in the same light. He left the body and returned to it three times under the influence of his sadistic passions, ejaculating at the third visit. His sexual hyperesthesia being relieved, he then gave himself up to the police.

Physical examinaton reveals the presence of anatomical stigmata, face shows weakness of character, features irregular in outline, ears of Morel type, palate is highly and sharply arched, malocclusion of teeth and slight internal strabismus of left eye.

Prisoner answers questions in a coherent and relevant manner. His general intelligence is in harmony with his common school education. He has no hallucinations nor delusions. He has no remorse for his deed, but is extermely sorry that his liberty is taken from him. He has wishfulfilling dreams of a sexual nature. Sense of moral and legal responsibility absolutely lacking. He says he will commit suicide when tired of prison life.

Eight of the psychopathic type were drug fiends, six of whom used both cocain and morphin, the prolonged use of which dulls the perceptions, enfeebles reason and judgment, diminishes the critical sense of the moral qualities of the mind and so makes and cultivates a tendency to crime. The crimes incident to the use of these drugs are all forms of larceny, blackmail, forgery, embezzlement and petty offenses of all sorts.

*The epileptic habitual criminals.* Ten per cent of the recidivists that I studied, belong to this class. The great neurosis epilepsy is a fruitful source of crime and many dangerous acts are committed by the epileptic. He is, as a rule, conceited and arrogant; he prefers idleness to employment; he seems to possess a morbid propensity for lying. True gratitude to him is an unknown quality and the general signs of mental instability and weakness are the predominant characteristics of his psyche. The unfortunate epileptics are most erratic in their judgment and therefore lacking in the same degree in self-control; they are excessively emotional and given to spells of musing and religiosity.

The violent acts of the epileptic are frequently performed during the automatic states preceding or following a convulsion. Such acts seem to be committed in a perfectly conscious and coherent manner, but in reality consciousness is blotted out and when the individual regains his normal status there is usually no memory for any of the events that occurred during these periods. After the paroxysm we find that the patient is confused, dazed and weak, which condition is usually followed by a deep sleep.

The condition known as psychical epilepsy is one in which the paroxysm is replaced by a nervous storm which is not accompanied by the usual signs of epilepsy. "Psychic epileptics may commit all manner of crimes, thefts, arson, assaults, homicides; they are not infrequently pyromaniacs entirely without reason or impelled by the flimsiest motives."

"This type of the epileptic neurosis must always be considered when some apparently normal person commits an outrageous act without any assignable cause.

"Murder by an epileptic should be looked on as being as much a symptom of his disease as is larceny by a general paretic."

"The medico-legal aspects of this type of epilepsy depend, so far as responsibility is concerned, upon our ability to determine the existence of the automatic state at a given moment. This may be difficult to do beyond reasonable doubt, though if we can prove that the person is a sufferer from epilepsy at the time, or ever had it in any form, we can always create a reasonable belief that the patient may have acted while in a seizure, without any intent whatever, and under conditions that should free him from responsibility.

The evidence of the presence of epilspsy needs to be carefully studied in order to arrive at a just conclusion in medico-legal cases. If it can be proved beyond a reasonable doubt that the individual has epilepsy, the question of responsibility is not difficult after that. We may not be able, it is true, to say positively that he was under the influence of a seizure at the moment an overt act was committed, while on the other hand, we are equally unable to prove that a seizure was not present. Psychic convulsions defy all ordinary methods of detection. They can readily be noted, however, by one trained in the observance of their expression."

*Criminal of the epileptic type.* Prisoner white male, thief, 35 years of age; father epileptic; one brother died of epilepsy at the age of 11; one maternal aunt insane; prisoner has had epileptic seizures at irregular intervals since 5 years of age; has used alcohol to excess since 18 years old; has had gonorrhea and syphilis; was two years a patient at the Kankakee Hospital for the Insane. He presents the stigmata of degeneration. He forced his wife to be a public prostitute. It has been shown that his crimes

have been more or less a result of epilepsy and its attendant dementia.

CONCLUSION.

It is evident after the study of these 100 habitual criminals that crime and its manner of classification has received far more attention than has the criminal himself. We have treated the symptoms rather than the cause, the physical and mental abnormalities which were the efficient factors of their criminality were disregarded. It is also apparent that more than 1,200 years of confinement has failed to reform them. Indeed the majority of them are far more antisocial because of their incarceration.

If the number that I have studied for the preparation of this paper can be taken to be representative of the habitual criminals in general, and I believe they can, I feel warranted in offering the following suggestions:

First, the recidivist is a mental defective. Habitual criminality is a reaction of a pathologically organized individual, whose anomalous defects or acquired diseases prohibit his efficient adjustment to his environment and make him extremely susceptible to the vicious influences of a complex social state.

Second, because of the fact just stated, reformation in the majority of cases of recidivists is a high-sounding illusion of misguided philanthropy.

Third, since the recidivist is a defective he should receive treatment rather than punishment and every remedial mental and physical defect should be relieved.

Fourth, as soon as a recidivist has been proven to be a mental defective by repeated psychological and psychiatric examinations, he should be retained in custody until he is so recovered that he is no longer a menace to society.

Our penal institutions are maintained at tremendous cost and I do not think the public should be compelled to build separate institutions for the care of the defective delinquent, but our prisons should be remodeled so as to have departments for the care and treatment of the mentally deficient criminals and these departments should be in charge of alienists.

BIBLIOGRAPHY

1. White: "Outlines of Pyschiatry."
2. Tanzi: "Mental Diseases."
3. Hart: "The Extinction of the Defective Delinquent."
4. Regis: "Mental Medicine."
5. Mills: "Idiocy and Imbecility."
6. Spratling: "Epilepsy."

DISCUSSION.

DR. SOLOMON: I agree with Dr. Bowers in everything he has stated except in the conclusion, in which he is absolutely wrong. In the first place, I feel that he has made a mistake in the title of the paper in that he has headed it "The Pathological Characteristics of the Habitual Criminal" instead of "The Pathological Characteristics of a Certain Number of Habitual Criminals Which He Has Examined"—100 I believe. The next thing is therefore to consider the material that he has. The institution in which Dr. Bowers is physician is an institution where I believe we receive the worst type of criminals who have committed offense after offense; a great proportion are individuals who have been sent there for 20 years or for life. These, therefore, are the extremes. Even with this material, however, we must remember that we have thousands and thousands of habitual criminals repeating various sorts of crime, from petty larceny upward who have never been convicted and who are not in institutions. Therefore, the material which Dr. Bowers had was, in the first place, the habitual criminal who happened to get in his institution; the others were not considered. I feel that from an examination of 100 individuals we have not a right to draw a conclusion which would apply to criminality —which has such a wide spread that we look upon it as normal.

The second point is with reference to the attitude of Dr. Bowers. I want to be extremely frank, as I know something of the previous history of Dr. Bowers. Before he was physician in charge he received a training in the hospital for the insane. I do not want to make an absolute statement, but I think when he comes to examine the criminal he is looking at them very much from a psychopathic standpoint and perhaps that has something to do with his examinations, as they have shown some form of abnormality in the psychic sphere.

The next point is as to the classification of Dr. Bowers. It is a question whether the individual whom he classes constitutionally inferior would be the classification that some of the gentlemen in the audience or I would have made. I feel confident that he would be apt to put many individuals as those constitutionally inferior whom I would consider quite within the normal.

The next point, granted even that the findings of Dr. Bowers are absolutely true: Dr. Bowers has presented findings, which he has discovered in 100 individuals, but he does not go into the etiology except in the conclusions. There he jumps from 100 criminals whom he examined to certain generalities which I feel he is not entitled to. From examining 100 individuals he arrives at conclusions which he applies to all criminals all over the world. Dr. Healy, in examining the pedigree of a great number of criminals, 900 or so, especially of juveniles, was not able to prove heredity in a single instance; therefore, if Dr. Bowers' conclusions were true, it would

not show a thing with the habitual criminal in general, or with reference to the criminal whether he is habitual or not.

The next point is: What is criminality? What is an habitual criminal? I think that those who have made a study of children will readily agree with me that most children have a tendency towards slight degrees of criminality, of theft, etc. I think it will also be agreed that an individual brought up in an environment of degeneracy is apt to form certain habits along criminal or other lines. It is mainly a question of the environment of life which drifts. Criminality is simply an exaggeration of the tendency toward self-preservation, and one of the means of self-preservation is self-acquisition. In the criminal, not the extreme, it may be due, absolutely due, to the environment, and many of the criminals after reform have become responsible individuals.

I feel it is an extremely important subject if we are going to label every criminal habitual criminals. Because a man has a habit he is no more inherently criminal than the individual who has not committed any crime.

## BRAIN HEREDITY AND BRAIN HYGIENE.

J. T. Searcy,
TUSCALOOSA, ALABAMA.

The nervous system may be said to be composed of afferent and efferent nerve lines and nerve centers. Within the spheres of action to which they relate the centers, each with its grade of intelligence, adjusts its executive action to its received action for the purpose of control or equilibration. All of this action is *sentient;* which property, or faculty, in the cerebrum reaches the grade of *consciousness.* Its tripartite qualifications, in its posterior, middle and anterior tracts, reach the grade of learning, reasoning and executing.

The nerve structures of the body lie in two departments; the functions of one relate to the outside of the man, to his environment, and the functions of the other to the control of internal organs. These two departments, though separate and distinct, are yet "sympathetic" the one with the other. The convoluted brain of man is the exceedingly large and complex center of the psychic department, whose functions relate to the external things and activities that come within its cognizance; the internal, or sub-psychic department, has control and adjustment of internal organs and activities.

The fact that the functions of the immensely complex cerebrum relate to the outside of the man, renders its habits and capabilities of action open to outside observation. It takes an expert to make an opinion of the condition of an internal organ, while, because their functions relate to the outside, everybody claims to be an expert in judging the habits and capabilities of the brains of others. This is a universal habit and we are constantly exchanging opinions with each other about the brain habits and abilities of our acquaintances.

We know that there are differences in the psychic habits and abilities of others and we are interested in looking for them. When these differences are customary, usual, natural, expected, we regard them as exhibitions that come from normal brains; when however they are not customary, unusual, unnatural, unexpected, we regard them as exhibitions that come from abnormal brains.

Exhibitions of abnormal psychic habits and capabilities, of whatever grade and kind, we of late call psychoses; when, however, a psychosis reaches such a grade of abnormality as to bring the person within the cognizance and jurisdiction of a court, we call it insanity. Such definitions clear up a heretofore very ambiguous field.

A court takes cognizcance of a psychosis to determine its grade for a number of purposes. For instance, whether it is, in one case, sufficiently grave to render the person irresponsible, if he has committed a crime; or whether, in another case, the psychosis is sufficiently grave to render the person so objectionable, that he should not be allowed to go at large but should be restrained and cared for in a hospital; in another case, whether the psychosis is sufficiently grave to necessitate that a support should be provided for the person, or a guardian be appointed to manage his property; in another case, whether the person's will, contract, or conveyance of property should be invalidated because of the grade of his psychosis; and in another case whether the person should be allowed to marry, testify, or vote. For such purposes the courts take cognizance and jurisdiction of psychosed persons; the grade of the psychosis is always the question, which is a matter of opinion; in many instances there can be differences of opinion as to the grade of the aberrancy. The court's opinion prevails.

The original inherited grade of psychic habits and abilities is a most important factor in the make-up of the person. The brain is a matter of heredity as much as any other organ. Its heredity is more a matter of importance than that of any other organ. The success and safety of the individual depends very much upon the inherited qualifications of his brain. Relating as it does to the environment, it increases and loses in abilities with the degree of ancestral exercise and effort that have been made in acquiring its accomplishments in the vicissitudes of the succeeding generations. The brain is man's specialty; with it he has peopled and encompassed the whole world and claims it all for himself; with its efficiency he has eliminated every other competitor, until his only rivals now are his fellow-men. Men civilize to a degree in accordance with their brain abilities and individuals, families and races succeed and excel in accordance with their psychic habits and abilities.

Little or nothing is done in a sociologic way in human society to increase and improve the brains of the people by the judicious mating of parents. Many of the social methods of human civilized society are directly derogatory to the improvement of this human specialty. The sex appetite and the appetency of the sexes, the one for the other, alone in the very large majority of cases determine the mating of men and women, without any reference to posterity.

The practice of having no selective reference to prosterity in human sex mating is having its greater and greater effect in the deterioration of the psychic abilities of the people. In our latter day civilization an equal valuation is put upon all human lives alike; which of itself enables the unfit, the misfit, the incompetent, and inefficient, to reach adult life and multiply themselves. The sympathies and charities of the civilized also enable the least competent to live and to multiply. It is true that the same evolutionary principles apply in human civilized society that prevail everywhere, that the less psychically competent are most eliminated, but we thwart natural elimination to such an extent that the deleterious results are becoming more and more apparent. The natural processes are not allowed to prevail. For this reason there are more deficient and more defective types of hereditary psychoses found everywhere, from the milder types, apparent wherever sociologic questions are studied, to the graver grades which people the penal and the beneficiary institutions. No selective attention, such as we use in the improvement of our domestic animals in their specialties, is paid to the improvement of man's specialty. Human heredity goes at loose ends, not even with instruction on the subject.

Eugenics is probably the most difficult of all sociologic questions to direct properly; a vast deal of instruction is necessary before proper principles or rules can be formulated or enforced. The less efficient propagate themselves without any reference to posterity and multiply in our society at an increasing rate, because every opportunity is granted them to do so, and they are aided, beyond their own abilities, to live and reach the multiplying age. To unsex the inmates of the penal institutions and of the insane hospitals, as is suggested, would hardly touch the border of the question; they come down to these levels in society from all directions, by reason of the processes of general psychic deterioration going on. The subject of human brain improvement and human brain deterioration, through the generations, is not studied; hereditary psychic deterioration is actually aided in our civilization; natural elimination of the less and least competent is prevented. Brain heredity is a live and a most important subject.

It is quite apparent in civilized society that brain deficiencies and defects are more numerous than those of any other organ. Something in civilized society is impairing the brains of the people, hereditarily and individually, more than any other organ.

We have in medicine a number of much used drugs, which are prescribed because they have peculiar chemic effect upon the sentient lines and tracts of the psychic system. Some of these are chloroform, ether, nitrous oxide, chloral, coal tar products, the solutions and the alkaloids of opium, cocain from coca leaves, alcohol from fermenting material, nicotine from tobacco, and caffein from tea, coffee, and cola nuts.

All these drugs have their specific effects upon the most delicate, functionating, protoplasm of the sentient structures, possibly to harden it chemically and prevent their sensating. Coming into the posterior, consciously sentient, tracts

of the brain are innumerable nerve lines bearing sensation, or producing a general sense of comfort or discomport in these most delicate structures, sentient and sensitive, because their protoplasm is the most delicate in the body.

Any one of these drugs taken into the circulation reaches all the structures of the body, but first affects these most delicate and sensitive nerve fibres and cells of the psychic department. The chemic effect of these drugs is to obtund or entirely suspend the abilities of these structures to feel or sensate. The ether, in a surprisingly small dose in the blood, affects these most delicate structures, and soon suspends the functions of the whole psychic center and department. There is no ability in the brain in the anesthetic stage of the administration to receive, adjust or execute. The whole cortex is suspended, with its afferent and efferent lines. If the administration is held at that point, only enough given to suspend the psychic department and not enough to suspend the lower grade less delicate centers of the sub-psychic department, the anesthesia is successful. If, however, enough is given to suspend the centers that control the heart, lungs, etc., the patient dies. The separateness of the two departments, one relating to the outside and the other to the inside, is well illustrated in surgical anesthesia.

These drugs vary, of course, in their chemic affinities for the different structures, and differ in the degrees of their toxicity. In the first stage of their action upon the sentient structures, the "subjective sense" of the person, in the use of each one of them, is comforting and pleasurable. He likes it. For this reason, the less toxic of them are often taken as luxuries. This is particularly the case with caffein, nicotine, and alcohol. They have gotten entirely out of scientific hands and are used generally as luxuries in civilized society. As a more capable civilized people we canvass the whole world for our support and pleasure. We found in Asia and Africa people using tea, coffee, and cola nuts for the caffein they contain; but for the caffein they would not be taken at all. We found men in North America using tobacco for the nicotine it contains; in South America, using coca leaves for the cocain; and we have learned to ferment and distill the alcoholics in many shapes. Opium is imported in much larger quantities than are used in medicine. Some of the coal tar products are being taken popularly. Indeed, we are using as luxuries many of these drugs in our society, while other races originally had but one, and we are reaping the effects.

The delicate sensating lines and brain tracts of the psychic department are rendered by the repeated use of any one of these drugs, hypersensitive, sore, and tender, so that the person, on the withdrawal of the drug, has a general sense of discomfort and feels bad in a way that he knows he can relieve by taking more. This chemically produced discomfort and the knowledge of the fact that he can relieve it by taking more of the drug, is what constitutes the "habit." Any person may know he has a "drug habit" when he has that discomfort after the withdrawal of the drug. The mildest ones produce it.

The so general use in our society of caffein by the women, children, and men, of nicotine by men principally, from 80 to 90 per cent of them, and of alcohol solutions of different strengths, is having the general effect of producing in individuals and in their posterity conditions of psychasthenic hyperesthesia; which the use of such drugs tends to increase in the habitues and in their children until society is becoming permeated with the lineal psychic results of such habits. The consumption of such drugs is constantly increased by their very use; a psychasthenic hyperesthesia, growing from these habits everywhere, increases the demand for the drugs. One has only to look about him and see such psychic conditions alarmingly prevalent and growing.

To recapitulate: Most brain qualifications are due to heredity; far the greater number are acquired in the ancestry. Brain heredity, dependent upon the same principles of descent that obtain in all biology when considered in reference to the importance of the organ in man, becomes one of the most important of all psychologic and sociologic questions. More attention ought to be paid to it in civilized society, where many natural processes for brain improvement are thwarted. We save and multiply the inefficient.

Brain hygiene is, of course, the most important of all hygiene. Much can be said about it. Many other causes of deterioration of its abili-

ties could be mentioned for which there is no space in this paper, but I draw attention to the extensive and popular use of anodyne drugs in our civilized country as the most unhygienic of all customs.

Both these causes of brain deterioration prevail most extensively in civilized countries. We save the incompetent and they multiply themselves, and throughout society we impair brains by our almost universal drug habits.

---

## CHRONIC ALCOHOLISM.

CHARLES F. READ, M. D.
Assistant Superintendent, Chicago State Hospital.
DUNNING, ILL.

On May 21 of this year the patient, R. L. T., was admitted to the Chicago State Hospital. He is a man 38 years old, married, but with no children, a stage carpenter by occupation. His father was a moderate drinker but lived to be 72. Patient had practically no schooling, playing truant most of the time, but learned to read and write shortly before marriage. He began to drink at 18 and was first really drunk at 21. Married at 21 and abstained for some time during the following two years. Later he began work as a teamster hauling whiskey and drinking freely, but losing no time on this account. He then began work as a stage carpenter and during the last ten years has been a hard drinker, often intoxicated. In 1912 he suffered delirium tremens and went to the Washingtonian Home, following which he abstained for two or three months, but after this was drunk once or twice a week. March, 1913, he again had delirium tremens and was sent to the Bridewell on account of an attempt at suicide. Following this experience he again abstained for two months, but in November began drinking hard again. In May of this year he again suffered an attack of apprehensive hallucinosis and cut his throat. He was taken to the Bridewell, remained there about two weeks and was sent to the Detention Hospital whence he was committed to the state hospital.

When received he seemed to be clear and gave no evidence of a psychosis. His case was classified as alcoholic hallucinosis, but this diagnosis was a retrospective one. In the state hospital the man has been perfectly sane. He shows no physical findings save sluggish abdominal reflexes, marked dermagraphia and hyperesthetic calf muscles (often has cramping). He is over weight, but his blood pressure is only 140 and his heart, arteries, liver and kidneys are not in bad condition.

However, there is no doubt but that he is a chronic alcoholic with acquired susceptibility that renders him liable at any time upon alcoholic indulgence to become a menace to himself and his fellows. Fortunately he never seems to harbor the ordinary alcoholic ideas of infidelity and is more accustomed to defensive than offensive lines of action. Hence thus far his hand has been turned against himself alone.

There is nothing particularly extraordinary in his case. Our police magistrates hear somewhat similar stories every day. The interest for the writer lies in the fact that now, less than a month after the patient's admission, we have been compelled to parole him. He will abstain for a few months, perhaps beyond the period of his parole, and then history will repeat itself. He will drink more and more until he begins to see and hear things again and then some fine day he will finish the job he has already undertaken or he may, in his toxic indignation, turn first upon his wife and kill her before he puts an end to himself. He is sane now and our state hospitals are over-crowded, so back the man must go to his old job, his old associates and his old habit.

Jas. McK. was returned to the Chicago State Hospital just the other day after his arrest following a two weeks' debauch subsequent to his escape while enjoying parole of the grounds. Prior to this admission to the Institution he had twice been at Kankakee during the last year and a half, and between times in the County Hospital on account of drinking. McK.'s father did not drink nor his mother nor any of his brothers or sisters. He has had a good grammar school education and a year in business college. For two years he earned fifteen dollars per week in an office. At 18 he began to drink quite hard; was now and then drunk on Saturday and Sunday, but worked quite steadily until 25 years of age, when he procured a political job where the work was light and the time and opportunities for drink abundant. At thirty, after five years in various city offices, the patient went to the Bridewell for four days and at about this time (patient was not exact in dates) he jumped out of a window of the Washingtonian Home and broke a leg,

---

Note.—True to prediction, the patient was returned a month later in a mildly hallucinated condition.

for which he was sent to the County Hospital for several weeks. In all he has been in the Washingtonian Home about ten times and for three years has done scarcely any regular work; two years ago he again spent a term in the Bridewell. At times he has worked as extra man at the stockyards, earning five dollars one day and drinking it up the next. While drinking he is said to become very noisy and excited and even pugnacious.

Physically the man is apparently in good condition. According to the ordinary mental tests he is as good as he ever was. He does clerical work daily in one of the Institution offices and is neat in personal appearance. He has gone the customary rounds, Bridewell, Washingtonian Home, County Hospital and Insane Hospital. In this last institution he does not really belong, but what shall be done with him? Evidently he can't be trusted to take care of himself, so at present the State Hospital must play nursemaid to a man who in the last fifteen to eighteen years has lost the habit of independent sustained endeavor and in its place has developed a mode of reaction outwardly expressed in alcoholic intoxication.

Incidentally this patient well illustrates the disadvantages of a hospital located across the street from three or four saloons and beer parks. The State law fixes the nearest approach of a saloon to a soldiers' and sailors' home at 2,000 feet and to the State University at four miles, but thus far it has failed to protect the institutions in which hundreds of alcoholics are treated yearly.

This man still passes an excellent mental examination and his physical condition is good. A life insurance company not knowing his history would probably accept him as a good risk. One of the best known of these companies is said to have lost 1,520 risks by alcoholic deaths in two years, which at an average policy of $1,000 means a loss of $1,520,000 to the other policy holders who must pay premiums based upon statistics including alcoholic deaths. In place of earning from $75.00 to $100.00 per month for the last ten years, as he might well have done, this man has, while working, barely supported himself and much of the time has been a burden upon his family and the state.

By a member of Kraeplin's clinic at Munich, 42 cases of chronic alcoholism were investigated with a view to establishing the exact cost of their incapacity and the results summarized as follows:

| | |
|---|---|
| Loss due to loss of employment | $15,000.00 per yr. |
| Loss due to sickness | 5,000.00 per yr. |
| Loss due to the imprisonment of 33 | 5,000.00 per yr. |

In all over $1,400.00 for each of the 42 on the debit side the ledger as against the many thousands which should have resulted from their productive labors.

Such men as these are recognized by the laity as well as by the profession to be in a class apart from the normal and yet not insane, save when suffering from an overdose of alcohol as evidenced in pathological intoxication, delirium tremens, hallucinosis, etc. They are chronic alcoholics or inebriates.

And what do we mean by inebriety? Broadly speaking, an incapacitation due *secondarily* to chronic poisoning, but primarily due to the individual's having drifted into slip-shod ways of meeting the exigencies of life.

Individual conduct at any one moment is resultant upon the choice of one out of many possible reactions. It is generally accepted that there are but two primary trends of human interest, procreation and self-preservation, out of which instincts rise countless modifications denoting by their character the degree to which the individual's reactions have separated themselves from their primeval simplicity. Dominant modes of reaction we loosely term motives or ideals. Thus we have individuals expressing in their lives the desire to be of service, to gain knowledge, wealth, etc., and upon the other hand we find tendencies to evade issues and to slip through life without effort.

The alcoholic's appeal to drink is without doubt a primitive form of reaction closely allied to that of a sensitive child who runs constantly to its mother to be comforted and reassured. The alcoholic longs to be patted on the back and told that he is really a fine fellow, badly treated by an unappreciative world. Rather than meet the demands of life squarely he slips to one side and comes up smiling, with the aid of alcohol. When he becomes sober the inner censor casts more or less scorn upon such evasions of the issue and this criticism is quieted only by the application of more alcohol. Alcohol by its toxic action enables the weak man to justify himself and even to glory in his wisdom and strength. It is a mighty lever raising him, in his own estimation, to a plane above that of most of his fellows. It is not difficult to think of the inebriate as childish, but it is quite the custom to look upon this as a result rather than as a cause. This error results from a failure to separate the two components of a vicious circle, the one a low-grade mental reaction, the result of personal make-up, the other the expression of this in a physical reaction—alcoholism—which reaction in

turn produces changes in the body that result in an increased facility for low grade adaptation.

By this it is not meant that all those who become inebriate are necessarily low grade in the scale of mental development. Mentality as commonly understood has not a great deal to do with the matter for, as every one knows, the possessors of some of the brightest minds have gradulty of selecting modes of reaction which will coholic. By what a man does and not by what he says is he judged. It is rather a question of what we often speak of as moral fibre—the faculty of selecting modes of reaction which will be of the greatest service to the individual in the long run. This selective ability does not depend upon so-called intellectuality. Successful adaptation often occurs in the plodding dullard and as often quite fails in the educated man of apparently high ideals.

The life histories of a great majority of chronic alcoholics show that they began to drink when boys of from fifteen to twenty and that they began to go to pieces around thirty; but occasionally we come across men who have done well up to thirty or over and then have disintegrated following some period of unusual stress. In these the personal mode of adaptation has been sufficient for the requirements of a well-ordered existence but not highly enough developed to take care of the organism when an extraordinary difficulty presents itself. Roughly we may compare it to the ability of a man who does well enough in a shooting gallery, but fails when called upon to defend his life against the attacks of a savage beast in the open field.

Given a man with a primary tendency toward the evasion of issues, and you have a man who must perforce wrap himself in a tissue of dreams. Some do this with the strange artifices of dementia praecox, manic depressive insanity and paranoia, some with a cloistered life of one kind or another, some with invention, or dreamy, ill applied learning, some with opium, cocain, etc., and finally there are those who drink in order to widen their horizons, to remove worry and sharpen their wits, to increase their bulk among their fellows, to make of themselves for the time being what they cannot bring themselves to accomplish by wearisome endeavor in a sober world. The tendency or drift toward chronic alcoholism is the result of a primarily defective adaptation to life as the individual must live it.

The ultimate results of this mode of reaction have been quite definitely determined by a multitude of observers. They are in a lesser degree the effects noticeable in acute poisoning by this same agent.

Physically: there are tremors of the face, tongue, fingers; slight degrees of muscular incoordination, evidenced in quick jerky speech and movements; a tendency toward peripheral neuritis, evidenced in cramping of calf muscles and tendencies of the nerve trunks; a tendency to adiposity, to cirrhosis of the kidneys and liver, and to arterial changes.

Mentally: there is a loss of the keen edge of the perceptions. A former alcoholic, who has now been abstinent for two years, in speaking to the writer of the change noted in himself, singled out this especial experience, remarking that he now seemed to "see more wherever he looked," to observe everything more clearly than before he stopped drinking. Narrowing of the perceptive horizons naturally implies a corresponding loss of normal associative activity which in turn permits of a greater prodominance of the drink complex and calls for more alcohol to take the place of the normal stimuli thus shut off.

Impressibility is lessened and memory becomes tricky. Because of a failure to call into play the greatest possible number of associative tracts when selective action is demanded, the individual shows weakened judgment. Reactions occur which are not so well adapted as formerly to carry the organism along upon its previous plane and it tends to sag to lower and lower levels. This in the main explains the source of the inebriate's degradation. Delusions of infidelity, hallucinosis, delirium tremens and the remarkable syndrome given by Korsakow all may occur in the course of the disorder and all are merely incidental to more acute poisoning either directly alcoholic in nature or indirectly due to the by-products of disordered metabolism. The main components of all these so-called psychoses are present to a lesser degree in the chronic alcoholic while he is still apparently sane. He is, as it were, always in a state of saturation, ready to precipitate at any moment upon the addition of the proper reagent.

The relation of this individual to society is a sociological problem that can only be touched upon in the present essay. The tale may be read in the municipal courts any day, or at the House of Correction, or in the corner saloon or the tenement, in the homes for the feeble-minded and in the hospital for the insane. For a long time we have listened with indifference to its telling, but without a doubt we are now upon the verge of a tremendous realization of its meaning, not for the individual alone but for the future of the race.

Dr. Alfred Gordon, formerly of Jefferson Medical college, in an intensive study of the effects of alcohol upon the descendants of 117 families, found that in the first generation of 90 families of alcoholics 200 of the offspring were mentally affected and 180 of these were epileptics. Of these children 78 began to use alcohol when from 8 to 16 years of age.

In the second generation of the descendants of 20 alcoholics, 78 were deficient and this deficiency was of a lower type than that found in the defectives of the first generation. There were more idiots and imbeciles with pronounced vicious tendencies. Sex perversions, vagabondage, debauchery and precocious prostitution occurred and quite a large number were admitted to hospitals for the insane in attacks of delirium and confusion.

The study of the effects on the third generation were confined to the descendants of seven known alcoholic families; 21 of these were imbecilic with or without epilepsy. (*Journal of Inebriety*, vol. 33, No. 3.)

Kraepelin quotes Chiarra as finding alcohol in the ovary and semen an hour after ingestion and Ceni as noting that chronic alcoholic hens lay one-third as many eggs as healthy hens and that among their progeny but 43 per cent were healthy as against 77.6 per cent of those of alcohol-free hens.

Conception in intoxicated states produces faults in the offspring. Holitischer reports three known cases of this nature; one child was a hydrocephalic imbecile, another rickety and scrofulous and suffered from disturbance of speech and gait while the third died at one and a half years in convulsions. Sullivan reports the death rate of the infants of abstemious mothers up to the third year as 23.9 per cent as opposed to a death rate of 55.8 per cent of those of alcoholic mothers. (Kraeplin; 8th edition.)

Last year the legislature of Illinois voted to found a colony for epileptics. In a number of states these are already well established institutions. A home for these unfortunates is necessary, but why did we not likewise ten years ago establish a hospital for those wounded and maimed in the insane celebration of the Fourth of July? Instead of this we instituted the Sane Fourth and almost completely did away in a decade with the need of any medical care whatever for our celebrants.

Four epileptics out of every ten stand in the somber shadow of an alcoholic parent. Alcohol contributes to the admission of from ten to twenty per cent of the inmates of our insane hospitals. Three-fourths of all the crime and misery in the world is due in part to this same cause. To these statements there is naturally but one reply—a reply so simple that it very probably will require another century for its entire acceptance. Alcohol as a drink must go. It is an economic absurdity.

Meanwhile we must in self-protection, if not in charity, give colony care to the inebriate and save not only the parent, but the child as well. There are many so-called cures for drunkenness and no doubt all are successful at times. A small proportion of drinkers will stop when suddenly brought to a realization of their delinquency, whether this be by a so-called cure, by conversion, by accident or in any other of a dozen ways. These are the individuals already pointed out as possessing a fair ability for adjustment up to a certain point beyond which they fail and go down until re-established by a sudden inner upheaval which restores them to their former level. The other ninety-five per cent, however, cannot emerge from their bondage in any such easy manner. For them there is no cure on earth save that of a period of enforced abstention with discipline, work, and religion when possible. Remember that we have to deal with an organism primarily prone to react in a manner not calculated to bring about for itself the best results and in addition to this original handicap, there is added the disintegrative effect of alcohol upon a nervous system evolved for the especial purpose of enabling man to react

to stimuli with precision, dispatch and far-seeing purpose.

Few inebriates actually crave liquor after they have been separated from it for a week. In two weeks' time they have no more physical desire for it than an abstainer. A patient recently told me two days after returning to the hospital from a two weeks' carouse, that he would not mind if he knew there was no more alcohol in the world and I have no doubt of his sincerity in this statement. No, the trouble lies not in the call of the body, but in the cry of the psyche for the effects of alcohol. The inebriate misses this foster mother who speaks kind words to him when things go badly, who entertains him and causes him to forget there is a real world with sharp corners on it. He is a big baby and nothing more, provided his liver and kidneys are in working order. Take his bottle away from him and he cries until his attention is distracted and he learns to do without it.

Upon the other hand—and herein lies great hope—the alcoholic is a marvel in his re-integrative ability. The sot, the bum of the street under discipline often becomes a good worker and a decent fellow after a wonderfully short period of abstinence; and with even greater facility he reverts to his former level when returned to his old friends and environments. In discipline and re-education lies the secret of his cure. And discipline and re-education cannot be accomplished in an insane hospital or the work-house. The logical, practical manner of dealing with this man is to commit him by law to an especial colony where he may be weaned from his foster-mother, taught habits of industry, and built over into an efficient mechanism.

The various laws that have been framed concerning the commitment of inebriates quite generally fix the maximum term at from two to three years, but permit removal upon parole at the discretion of the management. The method of commitment may be quite similar to that for the insane. In order to commit it is necessary only to establish the fact that the individual is incapable of properly conducting his own affairs or is dangerous to himself or others by reason of habitual, periodial, or frequent and constant drunkenness, and that there is reasonable ground to believe that he will profit by colony care. Voluntary commitment is probably expedient, as with the insane. The patients ought not to be of bad character apart from their habits of inebriety. Return by warrant of arrest must be possible at any time while the patient is absent upon parole or escape.

The Massachusetts colony at Foxboro has been in existence some twelve years. Its holdings invoiced, according to the latest report I could obtain, over $400,000.00, including a little over one hundred acres of land. The per capita cost of five dollars a week at this institution appears high as judged by the standard of our western hospitals, but relieved of the problem of union labor (in a locality far from any large city), it would seem that such a colony should, with an acre of land per capita, become in a few years almost self-supporting.

Of nearly one thousand ex-patients of the Foxboro institution whose condition was investigated a few years ago, twenty-two per cent could not be traced, twenty per cent had remained abstinent and twenty-one per cent were improved and at work.

At Knoxville, the Iowa State Colony of Inebriates established in 1906, over forty-two per cent of the graduates are reported as showing satisfactory results.

Now let us in conclusion indulge for a moment in some figures, professedly not above reproach and still good enough to give pause for thought. Illinois is now committed to the construction of a new insane hospital at a probable ultimate cost of one and a half millions for fifteen hundred patients, or one thousand dollars a bed. An inebriate colony can be established at the same cost and run at one-half to two-thirds the annual per capita. Let us say we invest a half million in a colony for five hundred patients. The stay of each patient let us say, averages four months —Foxboro figures—and we care for fifteen hundred a year. Let us assume that each year forty per cent or six hundred men are improved by their stay and that forty per cent of this six hundred, or two hundred and forty, are married men, or those who will marry later on, men at the height of their productivity as wage-earners and begetters of offspring. Let us be ultra conservative and allow each of the two hundred forty, only one child after he leaves the colony and we have two hundred forty children every year bred with better chances for health of body

and mind. This is a great asset, better health, less of imbecility, epilepsy, prostitution, drunkenness, sickness, and crime among the children of the state, to say nothing of what we do for the six hundred men themselves in re-making them into productive citizens. There is no doubt but that this is fit work for the state, a simple, sane and economical means of conserving the Commonwealth.

DISCUSSION.

Dr. Cohn (of Kankakee): Either I did not hear, but I wish to bring out one or two points the doctor did not pick out in his paper, viz., the so-called chronic alcoholic in his various sprees is not exhibiting a form of another psychosis when he indulges in alcohol to excess. After a young man has become what we might term a chronic alcoholic, we realize that we are dealing with præcox in whom personality has changed and in whom the excessive use of alcohol is simply an expression of the deteriorating psychosis from which he is suffering. I believe we ought to be careful in differentiating these conditions. The prognosis and treatment would be altogether a different one. Now there is a difference of opinion of what constitutes chronic alcoholism, whether it simply constitutes chronic or long continued use of alcohol, or whether it is a chronic mental state which shows deterioration.

Dr Theo. A. Diller: I believe that often alcoholism is an expression of underlying psychosis, dementia præcox, or mania depressive state. But there are many other forms of alcoholism. One of the most remarkable things to me about alcoholism is this: How long some men may drink alcohol without disturbing their mental intellect. I have in mind now a lawyer who died recently at the age of 72, a brilliant lawyer, a man who made a large income, who was a periodical drinker for many years—40 years I should say. Now, Mr. Chairman, I should like to go into theoretical consideration that Dr. Read has given us. I was to speak first of the practical suggestion that he made as regards state hospitals for inebriates. There is one in Massachusetts, one in Iowa. Minnesota started one a few years ago, and about eight years ago I myself brought the matter before the Pennsylvania State Medical Society, and a commission was appointed at that time to persuade the state, if possible, to create a state hospital for inebriates. We had at that time on the statute books a law which provided that a person who was an inebriate might be so adjudged by the judge of the court, after a hearing, and committed, in the language of the court, to the "proper hospital or asylum for a period not exceeding one year." Under that act persons were committed, viz., to the State Hospital for the Insane. Now, this was an anomaly; this was a great wrong. The superintendent for the State Hospital for the Insane did not want inebriates; on the other hand, they said it upset the discipline in the hospital. The machinery of the hospital was not made for patients of this class. They were a distinct class; they were to all intents and purposes sane men. On the other hand, it is not right to the decent inebriate to make him associate with the insane. In Pennsylvania a small appropriation was made to start a state hospital for inebriates. The law will have to be modified, for the appropriation is very small to start with. There are all classes of inebriates, and a hospital, to be a success, should provide for the different classes. Broadly speaking, there is one large class, the old bum, the incurable inebriate, who should be entirely separated from the other classes. But in the cities of Pittburgh and Philadelphia we have the same thing as Dr. Read referred to. States everywhere should provide proper machinery and they can only have proper machinery by state hospitals, which provide, first, for the curable classes, workhouse conditions, so that society would be spared from their trespasses. I have no doubt that such hospitals are everywhere needed and I have no doubt that good laws governing the whole subject of alcoholism are needed.

From an economic point of view, this alcoholic question has a tremendous number of sides. Society as a whole fails to frown upon the users of alcohol as it should; it rather cultivates the drinker. I do not believe that intense drinking is as proportionately marked today as it was a good many years ago, when everybody drank heavily. Secondly, the manufacture of alcoholic drinks is a business in which are invested hundreds of millions of dollars. Some years ago I tried, with others, to establish a hospital for inebriates in the state of Indiana. We did not succeed. We have tried since and we have failed, and we will continue to fail to a large extent unless the commitment be compulsory for a considerable length of time. I do not believe a year is sufficient; it should be at least three years. We are also trying the farm instead of sending them to the workhouse and are sending them to the farm to work.

Dr. W. S. Lindsay: I simply want to say something of the conditions in Kansas. We examine for life insurance for a company, but I find the answers to the questions are very different from what they used to be. In questions such as "do you use alcohol; what kind; how much?" the answer will be "Nothing." And the question, "If you are a total abstainer, how long have you been?" the answer is, "All my life!" These are the conditions we find in Kansas.

Dr. A. M. Wickstrom: This discussion has been most interesting to me; so much more, that all seem agreed that the average alcoholic is the man who is defective. We all know that alcohol is a toxic substance that tends to injure the human body, especially the nervous system. We know that the children born of the parents who have been in-

jured by this toxin will be defective, more or less, at least the resistance is not up to normal. No one can deny that. The question is what to do with the chronic inebriate. It seems there is only one thing to do, and that is, not to license a saloon where they can go—boy and girl—and get injured, and then take the taxpayer's money to build a hospital to cure them. I see no good scientific judgment in that. Our state of Texas seems to have solved the problem. They have shown in a practical way what can be done to cure the alcoholic. They have shown the effect of it. For my own part I studied this question in Europe and in various countries last year and am positively confirmed in my mind that the only way to treat this question is to treat it in a way that they have done in some states, and in some countries in Europe they are attempting it; that is, to simply prohibit, absolutely prohibit the manufacture and sale of toxin which causes degeneracy of the human race.

Dr. Williams: I am not in sympathy with the theory that the chronic alcoholic is necessarily defective. I am convinced that the inmates in our institutions are there from sociological reasons rather than by reason of their being technical dypsomaniacs. They have become nuisances and the county or the city has committed them to hospitals for insane or some place where they can be detained and forcibly compelled to follow a line of sobriety. I believe our relief is not from legislation as a preventive to insanity, but the only relief to be secured is from education. I believe that the best thing is the industrial colony. I think anyone who has had experience will say that the best thing is the institution in which industrial habits are taught and in which habits of shiftlessness can be removed.

Dr. Read (closing): The matter has been quite thoroughly thrashed out and I am greatly gratified by the discussion of the paper. The movement at this time seems to me the logical one, and it is my opinion that we can do more for the inebriates than we are doing at the present time. It has been stated by some of the speakers, and rightly so, that alcoholism is probably merely a symptom of other well-known mental disorders; no one has quarreled with that. I have had a good deal of experience with chronic alcoholics coming to the state hospital. I have seen those who drank only because they were mentally affected and others who drank probably because they were in the beginning inferior individuals, but we could not say they were insane. Those are the people that have to be taken care of; that have to be restrained. Possibly most of them have never learned to care for themselves properly, to live normal lives; others have drifted downward from higher levels and have to be returned if possible. The figures of these institutions already established show that they do attain a considerable, a very decided, measure of success in at least 40 per cent. Now that 40 per cent is worth going after, and if, as one speaker says, you allow the sale of this toxin, it would seem that the state should provide also for those who are disabled by it.

As for the disgrace of sending a patient to a hospital, I can't see that at all. We send a patient to a hospital when he is sick, has some general ailment, surgical or medical. Years ago they used to be afraid of hospitals for general illnesses. Now we have gotten over that and people are anxious to go, and the better educated they are the more anxious to go.

---

## THE EMOTIONAL FACTOR IN THE ETIOLOGY OF SUICIDE, CRIMINALITY, INSANITY, AND MORTALITY.

HENRY S. MUNRO, M. D.,
OMAHA, NEB.

So far as it appears to our senses, every phenomenon of nature—all life processes, animate and inanimate—is but a series of motions or actions. Our mind refuses to admit that science has no existence and that the many aspects under which the sciences exhibit nature are not aspects of a single reality.

We believe with Taine that:

The progress of science consists in the explanation of a series of facts by a higher fact which sums them up. The different sciences can thus be condensed into as many definitions, from which all the truths composing them can be deduced. Then a time comes when we are more daring; we discover the unity of the universe, and understand what produces it. It neither proceeds from anything external to the world nor from any mysterious thing hidden in the world; it proceeds from a general fact similar to the others, from a parent law from which the others can be deduced, just as all the phenomena of weight are derived from the law of attraction and all the phenomena of light from the law of undulations. This law is the final object of science, and if we could rise to its height we should see the eternal torrent of events and the infinite sea of things issuing from it, as from a spring, by separate and divergent channels.

A better comprehension of the mechanism of life has exerted a marked influence upon the evolution of therapeutics during the past few years. We are no longer satisfied to treat merely symptoms, but seek to find the pathogenic cause, be it designated microbic, parasitic, chemical, physiological, or psychological, since there is no action without reaction, and all manifestations of living phenomena refer to one and the same reality, *i.e.* organization.

As I have stated in previous writings, viewing

man from the standpoint of evolutionary monism, the treatment of mental and physical diseases cannot be separated. Mental diseases, so-called, are frequently merely the expression of some general pathological condition, such as specific infections, autointoxication, abnormal internal secretions, cardiac, vascular, hepatic and renal insufficiency, and other conditions associated with disordered metabolism; and we are recognizing that it is not diseases that we are called upon to treat, but disease, a diseased patient. With modern methods of diagnostic precision, we seek the cause and remove it, be it endogenous or exogenous, bacteriological, dietetic, social, chemical, occupational or psychological, whether found in the habits of the individual or in the experiences dating back to childhood and infancy, such as may be expressing themselves in the habits and conduct of the individual and in this manner, are revealing themselves as the determinants of the functional disturbances so often found responsible for mental and physical deterioration and thus conducing to the development of gross pathology. Only with this viewpoint held constantly before us, can the problem of cause, prevention and cure be made rational and effective.

It is the conclusion of contemporary psychologists that each human being is what he is because of his individual experiences since birth, and that when born he is the specific embodiment of all organized experience, whatsoever, that enters into the direct line of his human and prehuman ancestry. A single cell, the fertilized human ovum, thus comprises the raw material of all the higher phases of human character, of what will later manifest itself as intellect, and also of what will express itself as will. The presentative and effective elements of the organism thus co-exist in the fertilized ovum in their integral unity, be these designated as physical or psychic attributes, whether man be regarded as soul, spirit, mind, life, or matter. As biologists, or scientific physicians, we regard these terms as meaning one and the same.

The chemical properties of living things are not fixed, but are subject to certain constant changes and sometimes fundamental fluctuations. All living things, from protozoa to man, are made of the same chemical elements as minerals; a living being or thing is the arena of the same physical forces as those that govern the inorganic world.

Life is difficult to define because it differs from one living being to another, even of the same species; the life of a man is not that of a polyp or a plant, and if we find it impossible to discover the line of demarcation which separates life from other phenomena of Nature, it is because no such line of demarcation exists; the passage from animate to inanimate is gradual and insensible.

A living being is a transformer of matter and energy, only a current of matter and energy, both of which change from moment to moment while passing through the organism.

All methods of therapeutics are biochemical, be they designated as psychic, balneologic, hemolitic, catylitic, chemic, physiologic or biologic. All therapeutic measures produce results in conformity to a common law, *i.e.*, the action and reaction of physicochemical phenomena. They are physicochemical processes.

The elementary phenomena of life is the contact between an alimentary liquid and a cell; for the essential phenomena of life is nutrition, and in order to be assimilated all the elements of an organism must be brought into a state of solution. Hence the study of life may be best begun by the study of those physicochemical phenomena which results from the contact of two different liquids. Biology is thus a branch of the physicochemistry of liquids; it includes the study of electrolytic and colloidal solutions, and the molecular forces brought into play by solution, osmosis, diffusion, cohesion and crystallization.

The strange analogies between microorganisms and certain crystals and the study of the colloids which the physicists are just beginning, to which belongs protoplasm, suggest the possibility of cellular physics, which, while it may still be called physiology, have methods and technic borrowed from so-called inert matter, practically wiping out the line of demarcation between biology, chemistry and physics. However, let us hope that in the future the type of scientific finality which is merely a survival of the theological spirit will be banished from our arguments. It is difficult to credit the number of false arguments which still cling to medical science and send us into cheap ecstasies over our marvelous progress.

No one can enact by authority the unity of

medicine. But we ought to make it impossible for any branch of medical science to be made or taught by narrow minds, products of specialization pushed to extremes. While the sciences are tending to unite, scientists must not draw apart in mutual misunderstanding. Houllevigue has well said: "An isolated worker is often hampered by a preconceived idea which would disappear before the united efforts of two diverse minds which, striving with the same end in view, would act as a stimulus and a check on one another."

If I had but one word to say to this body, among which are so many men interested in psychiatry as a specialty, it would be to urge that we do not forget the physicochemical basis of life; and I would urge that we take especial notice of the work of the physicists, the chemists, the biologists, the parasitologists, and the physiologists, and, in the light of all of these branches of practical investigation, build that branch of clinical medicine which seeks to ameliorate the defects of the human race to which we are now turning our attention under the name of Psychiatry.

The behavior of organisms depends upon the physical, molecular stability of the organism, as well as upon the external factor, the excitary stimulus, and there is no such thing as a nervous mechanism functioning separate and apart from both its endogenous and exogenous environment, and so it is throughout the entire realm of pathology.

Clows has shown that the virulence of tumors and their rate of growth were directly proportionate to the potassium content and inversely proportionate to the calcium content. This, he considered, indicated a peculiarity in the equilibrium of electrolytes and in the absorption of electrolytes by the cell. Disturbances of the normal equilibrium would modify the permeability of the cell membrane, and would vary the passage of foodstuffs through the membrane for the nutrition of the cell. The equilibrium of the cell was identical with the equilibrium of its membrane, which in turn meant the equilibrium of the contained lipoids, and this could be expressed as the equilibrium of the electrolytes, showing that the changes constantly going on in pathological processes are being expressed in terms of electrokinetics.

Life may be and seems to me to be the effect of energy which may call matter into being for the purpose of expressing or declaring its own presence and power; and, therefore, when the immediate purpose has been fulfilled, matter may again vanish into nothingness from whence it came, so far as human personality is concerned. The nature factor is the powerful detriment to the individual life, and the impingement of environment evokes the individual reaction of the psycho-physical potentialities of the organism, forcing its peculiar adaptation to the environment in accordance with the law of the survival of the fittest. Nothing is nearer the truth than the statement that an environment that would prove the annihilation of one type of organism, even of the same species, would furnish only wholesome and delightful exercise for another.

There is such a thing as innate psychophysical potentiality, energy which is ever ready for expression, and this thing we call life is a physicochemical process. In whatever form life may be found expressing itself, we have a reacting substance ready to be aroused by a suitable stimulus. The physiologist, the physicists and the biologist tell us that this stimulus may be an electric shock, a chemical substance, the action of light, a change of temperature, a decrease or increase of water, or a mechanical impact. All of these are included in the last named term, *a mechanical impact*, including those external factors that influence the activities of the central nervous system through contact with the special senses,—the reacting cell, organism, nervous mechanism or individual giving the same response to them all.

The stimulus behaves as a kind of releasing agency, liberating what is pent up in the reacting substance, be it an ion, atom, or cell, or an aggregation of cells composing the individual organism, which is set into action by the process. In any case, the thing is, as it were, compressed, ready to explode. The potential energy is in waiting, ready to become kinetic. Once the trigger is pulled, or the releasing agency sets going some condition necessary to the process of action, the further work is accomplished by the power inherent in the various elements embodied in the process.

A rough environment may be all that is necessary to evoke hidden potencies, or to change the organism into a true alchemist, that strives to

convert the base metal of selfishness into the gold of generous deeds and high and worthy aspiration. There is such a thing as the synthesis of physical stability, intellectual strength and ethical attainment, all combining themselves in fidelity to fact and expressing themselves in the life and work of the man of science. The everyday work of the thousands of such men in the practice of medicine, who are the embodiment of these synthetic qualities, attests the truth of this assertion, and these are the men who are endeavoring to make the facts of science bear fruit in the lives of their patients.

Tell us please, of what use is a collection of data called science, of accumulations of a large collection of observations on various natural phenomena, until by the application of persistent thought it is employed to produce definite, tangible, therapeutic results, or is made to become subservient to some useful purpose?

Efficiency is the watchword of the age, but it implies not only a wide knowledge of facts, but a breadth of vision that will enable the relations among the various categories of human knowledge to be seen clearly and applied to the practical needs of mankind. Today we see many of our medical journals so filled with articles devoted to some concrete expression of "disease," or local expression of pathology, that one becomes tired and disgusted at the narrow viewpoint assumed by the investigator. Like a man holding a silver dollar before one eye close and snug, with the other tightly closed, he fails to get a vision of the broader world about him in the light of the shining sun. How refreshing it is under such conditions to see the appearance of such books as Well's Chemical Pathology, Malory's Pathological Histology, Henderson's "The Fitness of the Environment," Leduc's Mechanism of Life, Houllevigue's Evolution of the Sciences, Meyer's Laws of Human Behavior, Abbott's General Biology, Kilpatrick's Genetic Psychology, Mercer's Conduct and its Disorders, Jones' New Era in Chemistry, Martin's Triumphs and Wonders of Modern Chemistry, D'Albe's Contemporary Chemistry, Hilger's Hypnosis and Suggestion, Guelpa's Auto-Intoxication and Dis-Intoxication, Lugaro's Modern Problems in Psychiatry, and scores of other books that are calculated to widen one's vision and give him principles that can be used in the every day practical work of the truly sincere and alert physician. Preliminary to these books, the five-foot shelf of Harvard Classics, or even an intimate knowledge of Darwin's Origin of Species, Heckel's History of Creation, Evolution of Man, and Riddle of the Universe, and Spencer's Biology and Psychology, together with the equipment furnished by the High School, and his technical medical training, should be the common possession of every practitioner, even if he had been deprived of a thorough premedical scientific education.

Far be it from me to belittle the wealth of scientific literature that is now available for the growing man, inviting him as it were to drink freely at the fountain of science and pass it on to his patients as a heritage for the future of the race, people who are a thousand times more in need of facts and principles by which life and conduct can be correctly guided for the achievement of health, sanity and efficiency than to be steeped in traditional superstition, or to be drugged and carved after living in open violation of the physiological requirements of health. Work in special departments of medicine must constantly claim our attention but it is easy in our zeal for our specialties to lose sight of the simple requirements of fidelity to the composite individual as well as to the public at large.

The beginning of efficient living must be by obtaining a correct interpretation of the phenomena of life in order to comprehend the relation between cause and effect, hence the necessity of a knowledge of the sciences. Once a physician has obtained a fondness for the sciences his further development is assured. Only he who is fixed by some antiquated theological dogma, and whose brain cell activity is inhibited through the fear of a concept of a capricious deity, from which he naturally shrinks, fails to grow as long as he lives. It is natural for development to take place under normal conditions and if it does not, then something has interfered with nature. Crampton truly says:

No evidence of evolution could be more significant and interesting than the results provided by the comparative study of development. In the first place it is an obvious fact that every living thing changes in the course of its life history, and if as an adult it occupies a high place in the animal scale, its embryological transformation is more elaborate and intricate than in the case of a lower form. Every one knows that organisms do develop, and yet I believe that few appreciate the tremendous signifi-

cance of the mere fact that this is true, while still fewer are aware that the peculiar and characteristic early stages through which an animal passes in becoming an adult are even more striking than the fact of development itself.

Organic transformation is real and natural. Truth itself is organic and when you begin to feed upon it has a definite structural arrangement in the brain cortex to function forever afterward as an integral part of your personality. For once and forever let us get the idea out of our heads that any man, or set of men, has a monopoly of the accumulated knowledge of the ages. The book of Nature stands wide open and *all who will may read.* The value of an opinion depends upon the evidence upon which it rests. All books of science, philosophy, history, ethics, sociology and psychology, a knowledge of the work of all investigators, shed light upon the path of the truth seeker depending entirely upon his individual mode of reaction to the ideas obtained from his observation of the work of others. Hence the value of correlating experience with theoretical knowledge, as a means of better adaptation to environment or as a means of obtaining the best therapeutic results in the treatment of disease.

The great laboratory of life not only stands wide open but the best piece of machinery for measuring facts and theories is the cultivated brain, the intellect; hence the necessity of persistent study. The really essential thing, if we have capacity for growth, is that we do not limit our point of view to any circumscribed area. The narrow corner of the specialist is absolutely at the mercy of the man who has a broader qualification, if he but decide to adopt such measures as will deprive him of "material" in his broader effort to save human life.

We are evolving, growing and developing. There is an eternal energy within all things that makes for human betterment. We can laugh up our sleeves at the effort of any class of individuals to quell the evolutionary process, which is as active today as it was a million years ago. This idea was beautifully expressed by Whittier when he said:

"I know not where his islands lift
Their fronded palms in air,
I only know I cannot drift,
Beyond his love and care."

Take the above paragraph to mean whatever you choose to read into it. Personally, I do not propose to dogmatize, not even to save my scientific reputation. I only ask that the dogmatist does not try to force his cock-sure theory upon me. We KNOW nothing of the ultimate cause of reality, if we are but honest enough to speak the truth. Herbert Spencer called it "The eternal energy behind and within all things." Others call it "mind." Some name it "force." The idealists call it "God."

These terms are only abstractions and do not mean anything, except to a splendid hypnotic subject. Give it whatever name you choose, it is life itself—electrical, ionic, atomic, chemical, physiological, vital—used to perpetuate and to transmit life, of which we are a part, indestructible, eternal, illimitable and everlasting. It is action that counts. We know a thing by what it does and by what it is capable of having done to it. The energy of a given body is the amount of transferable motion stored up in that body, and is measured by its capacity for producing heat or mechanical work.

If a scientific hypothesis or religious theory, or school, or thing is annihilated, who can say that it had any right to exist? If your own life is coherently bound up with that of the highest interest of the larger professional body, and that of the larger social organization, you are a free man!

If a concept of a "God" is found to be selfish, capricious, bloodthirsty and tyrannical, such as some of the orthodox churches are upholding and by inciting fear of which are thus enabled to coerce the weak, ignorant and unthinking men, women and children, all of whom are controlled and exploited by their self-assumed "authorities" —clergy, priesthood, or hierarchy—holding them in slavery and passing what is left of their repressed personalities on to our surgeons, to the insane asylums and to the grave, why should he have our respect? Some one has truly said that an honest "God" is the noblest creation of man.

I believe that it was Crile who said that a lion or an elephant knew no such thing as fear so far as his relation to the other is concerned but that an insignificant little mouse up an elephant's snout, on account of the fear that it incites in the animal, could put an entire drove of these enormous beast to flight.

Fear paralyzes the reasoning faculties, the "analyzer" or "adjuster," and disturbs the

equilibrium of the entire human mechanism. Religious control through the incitement of fear is no exception to this general law. Equilibrium is a conception of physical science and as such is susceptible of exact definition. In this light it is evident that the effects produced by fear through religious coercion are physico-chemical reactions.

Fear thus produces harmful pathological effects though less perceptible in the same manner as does a bolt of electricity from the clouds or according to the same physico-chemical reactions that are produced by the spirochette, the hookworm, tubercle, typhoid, meningococcus, gonococcus or any other specific chemical poison. Fear inhibits the function and retards the development of the higher centers of the brain, thus quelling the further evolution of the individual. It arrests the normal activity of every bodily organ and cell. It kills.

I defy the scientific men of the world to prove that the disrupted co-ordinations produced by the incitement of fear, whether coming from the pulpit or from "the hold-up man," are not in accord with the same destructive forces and governed by the same laws that cause death from all other "etiological factors" of disease, such as those of recognized parasitic origin that have entered the blood. The reaction of the individual to the psychic, electrical, chemical or physical agency causing a disturbed equilibrium constitutes the "disease."

The direct proof adduced by Crile of the mechanistic action that the brain cells play in maintaining consciousness; of the fact that the degree of consciousness depends upon the physical state of the brain cells; and, finally, that efficiency may be restored by sleep, provided that exhaustion of the cells has not progressed too far, has an important bearing upon the subject under discussion. In this greatest phenomenon of life then, the mechanistic theory is in harmony with facts.

Crile's postulates are partly in harmony with my own writings, in that he maintains not that man is in large measure the product of his environment, but that environment has been the actual creator of man; that the old division between mind and body, soul and spirit is nonexistent; that man is a unified mechanism responding in every part to the adequate stimuli given it from without by the environment of the present and from within by the environment of the past, the record of which is stored in part in cells throughout the mechanism, but especially in the central battery—the brain. He further maintains that the human body mechanism is equipped for such conflict with environment as will tend, first, to the preservation of the individual and, second, for the propagation of the species, both of these functions when most efficiently carried out, tending to the upholding and perfection of the race.

In one particular alone would I differ from this postulate so beautifully set forth by Crile. I maintain not only that environment is man's creator, but that man is the actual creator of the environment that creates him. The American government creates our American citizenship, but the people create the American government. Shelter and warmth, food and clothing, education and companionship, constitute the environment that creates man, but man selects or creates these factors that create him.

We have reached the time when the biological principles of evolution, consciously and intelligently applied, are exerting a marked influence upon all the factors contributing to the welfare of human life, the treatment of disease and the promotion of happiness. The doctrine of evolution should reconstruct every link in the chain of beings from the simplest to the most complicated; it cannot afford to leave out the most important of all, i. e., the missing link between the inorganic and the organic kingdoms. If there is a chain, it must be continuous in all its parts; there can be no solution of continuity.

Long ago the penetrating genius of Lemarck seized on the idea that a knowledge of life could only be obtained by comparison of organic with inorganic phenomena. He writes:

> If we would acquire a real knowledge of what constitutes life, of what it consists, what are the causes and the laws which give rise to this wonderful phenomena of nature and how life can be the source of the multitude of forms presented to us by living organisms, we must before all consider with great attention the differences which exist between inorganic and living bodies, and for this purpose we must compare side by side the essential characters of these two classes of bodies.

Leduc tells us that synthetic biology includes morphogeny, physiogeny and synthetic organic chemistry, which is also a branch of synthetic

biology, since it deals with the constituents of living organisms.

Synthetic organic chemistry is here already as a well organized science, important by reason of the triumphs it has achieved, as has been well demonstrated by the work of numerous men from Pasteur down to many workers of the present day. The other two branches of biological synthesis, morphogeny, the synthesis of living forms and structure, and physiogeny, the synthesis of living functions, can hardly be said to exist as exact sciences. They are, however, no less legitimate and no less important than the sister sciences of synthetic chemistry.

Our methods of amelioration and cure of diseases have practically narrowed down to two general measures, i. e., those inhabiting the life of the invading parasite and those of heightening the immunity of the host. The laboratory methods of examination of the morphological constituents of the blood and the chemical elements of all other bodily fluids has resulted in the rewriting of some of our physiology and improved the diagnosis and treatment of a number of diseases.

We are accustomed to consider disease as an abnormal biological process, the result of some external action which enters the blood and injures the organs and disturbs their functions, to which the organism reacts either with success or failure. Whatever be the external cause, the reaction of the organism depends upon the sum total of the energies of the organism.

Even in making out our diagnosis, localization, remarks Minowinski, does not mean that the whole process is limited to the bounds of a single organ. No organ exists for itself alone. There is such a thing as the correlation of organs and tissues, each and all acting together as an inhibitory or excitatory mechanism. The function of every organ depends on processes taking place in other organs and the products of its own activity influences the functions of other organs. These products may be ferments which promote decomposition in the blood, or they may be harmones which regulate the activity of cells. In other words, it is not enough to make a localized anatomical diagnosis; we must make a clinical diagnosis as well.

May it not be that the influences exerted upon the central nervous system from without exercise a greater influence upon the metabolic or chemical processes than some of those who are studying chemical substances, isolated organs and structures by laboratory methods can appreciate?

Crile reminds us, as we are well aware, that the essential function of the nervous system was primarily to secure some form of motor activity, first as a means of securing food, and later as a means of escaping from enemies and to promote procreation. According to this author, activities for the preservation of the individual and of the species were and are the only purposes for which the body energy is expended. The central nervous system has accordingly been developed for the purpose of securing such motor activities as will best adapt the individuals of a species for their self preservative conflict with environment. He shows that so-called "psychic" states as well as the reflexes are products of adaptation; that they occur automatically in response to adequate stimuli in the environment; that like reflexes they are expressions of motor activity which although intangible and unseen in turn incites to activity the units of the motor mechanism of the body; finally, that any "psychic" condition results in a definite depletion of the potential energy in the brain cells which is proportionate to the muscular exertion of which it is the representative.

Further, that this nerve mechanism may effectively carry out its twofold function, first, of self adaptation to meet the increasingly complicated stimuli of environment; and second, of in turn adapting the motor mechanism to respond adequately to its demands, there have been implanted in the body numerous nerve ceptors—some for the transmission of stimuli harmful to the mechanism—nociceptors; some of a beneficial character —beneceptors; and still others more highly specialized, which partake of the nature of both bene- and nociceptors—the distance ceptors.

According to him the response to contact stimuli then depends always on the presence of nociceptors in the affected part of the body and to the type of the contact.

These adaptive responses to stimuli are the result of the action of the brain cells which are thus continually played upon by the stimuli of environment. The energy stored in the brain cells in turn activates the various organs and parts of the body. If the environmental impacts are

repeated with such frequency that the brain cells have no time for restoration between them, the energy of the cells becomes exhausted and a condition of shock results. He further tells us that every action of the body may thus be analyzed into a stimulation of ceptors, a consequent discharge of brain cell energy, and a final adaptive activation of the appropriate part. Walking, running and their modifications constitute an adaptation of wonderful perfection, for, continues Crile, as Sherinton has shown, the adaptation of locomotion consists of reflexes—ceptors in the joints, in the limb and in the foot being stimulated by variations in pressure.

Why are we not equally justified to postulate ceptors in the cells of the various glands of the body; for the purpose of increasing the metabolic processes in response to the needs of the body as an adaptive mechanism? As a matter of fact, action of body and mind increases all physiological processes and heightens the psychophysiological potential of every element in the human organization.

Crile shows that the bene- and nociceptors orientate man to all forms of physical contact—the former guide him to the acquisition of food and to sexual contact; the latter direct him from contacts of a harmful nature. The distance ceptors (particularly his eyes), on the other hand, adapt man to his distant environment by means of communication through unseen forces—ethereal vibrations produce light; air waves produce sound; microscopical particles of matter produce smell. The advantage of the distance ceptors is that they allow time for orientation and because of this great advantage the majority of man's actions are responses to adequate stimuli. As Sherinton has stated, the greater part of the brain has been developed by means of stimuli received through the special senses, especially through the light ceptors, the optic nerves.

Further quoting Crile, the contact ceptors do not at all promote the expenditure of energy in the chase or in fight, in search for food or for mates. Since the distance ceptors control these activities, one would expect to find that they control also those organs whose function is the production of energizing internal secretions. Over these organs, the thyroid, the adrenals, the hypophysis, the contact ceptors have no control. Prolonged laboratory experiments seem to prove this postulate. According to his observations, no amount of physical trauma inflicted upon animals will cause hyper-thyroidism or increased epinephrin in the blood, while fear and rage do produce hyperthyroidism and increased epinephrin. This is a statement of far reaching importance and is the key to an explanation of many chronic diseases, diseases which are associated with the intense stimulation of the distance ceptors in human relations.

Crile tells us:

On this mechanistic basis the emotions may be explained as activations of the entire motor mechanism for fighting, for escaping, for copulating. The sight of an enemy stimulated in the brain those patterns formed by previous experiences of the individual with that enemy and also the experiences of the race whenever an enemy had to be met and overcome. These many brain patterns in turn activate each that part of the body through which lies the path of its own adaptive response—those parts including the special energizing or activating organs. Laboratory experiments show that in an animal driven strongly by emotion the following changes may be seen: 1, a mobilization of the energy giving compound in the brain cells, evidenced by a primary increase of Nissl substance and a later disappearance of this substance and the deterioration of the cells; 2, increased output of epinephrin, of thyroid secretion, of glycogen and an increased power of oxidation in the muscles; 3, accelerated circulation and respiration with increased body temperature; 4, altered metabolism. All of these are adaptations to increase the motor efficiency of the mechanism. In addition we find an inhibition of the functions of every organ and tissue that consumes energy but does not contribute directly to motor efficiency. The mouth becomes dry; the gastric and pancreatic secretions are lessened or are completely inhibited; peristaltic action stops. The obvious purpose of all these activations and inhibitions is to mass every atom of energy upon the muscles that are conducting the defense or attack.

So strong is the influence of phylogenetic experience that though an enemy today may not be met by actual physical attack, yet the decks are cleared for action, as it were, and the weapons made ready, the body as a result being shaken and exhausted. The type of emotion is plainly declared by the activation of the muscles which would be used if the appropriate physical action were consumed. In anger the teeth are set, the fists are clinched, the posture is rigid; in fear the muscles collapse, the joints tremble and the running mechanism is activated for flight; in sexual excitement the mimicry is as obvious. The emotions then are the preparations for phylogenetic activities. If the activities are consummated, the fuel —glycogen—and the activating secretions from the thyroid, the adrenals, the hypophysis are consumed.

In the activation without action, these products must be eliminated as waste products and so a heavy strain is put upon the organs of elimination. It is obvious that the body under emotion might be clarified by active muscular exercise but the subject of the emotion is so strongly integrated thereby that it is difficult for him to engage in diverting, clarifying exertion. The person in anger does not want to be saved from the ill effects of his own emotion; he wants only to fight; the person in fear wants only to escape; the person under sexual excitement wants only possession.

All the lesser emotions, worry, jealousy, envy, grief, disappointment, expectation; all these influence the body in this manner, the consequence depending upon the intensity of the emotion and its protraction. Chronic emotional stimulation therefore may fatigue or exhaust the brain and may cause cardiovascular disease, indigestion, Crave's disease, diabetes and even insanity.

The effect of the emotions upon the body mechanism may be compared to that produced upon the mechanism of an automobile if its engines are kept running at full speed while the machine is stationary. The whole machine will be shaken and weakened, the batteries and weakest parts being the first to become impaired and destroyed, the length of usefulness of the automobile being correspondingly limited.

I have quoted freely from this able article of Crile's because it completely substantiates premises from which I have worked for the past fourteen years.

The five special senses are nothing more or less than projections of the central nervous system spread out to reach the surface of the body to receive the impact of the outside world, and every impression made upon man's motor mechanism is such as to activate one or the other of the fundamental instincts.

If these instincts fail to overcome obstacles by calling into play the entire intellectual and physical capacities of the organism there is a disturbed equilibrium in all of the functions of the organism, a misadaptation to environment, hence a disease.

A disturbed equilibrium leading to exhaustion of brain cell power results in functional disturbances such as indigestion, constipation, deficient nutrition, retarded combustion, intestinal stasis and their consequent visceroptosis, cardiovascular, hepatic, nephritic and glandular degenerations. The disordered physical machinery, with the consequent disturbances in the biochemical and cellular changes, aggravate the nervous and mental symptoms and there is a lowered physical potential of every cell and every function of brain and body. The organism becomes, as a consequence of these metabolic disturbances, less immune to the various infectious diseases; all bodily defences are hindered and we have invented a thousand or more names for these natural disintegrative processes which are not diseases but are the natural consequences of conflicts between the human mechanism and the destructive factors of his environment.

A. Chauffard, Professor of Clinical Medicine in the University of Paris, in his address before the seventeenth international congress, truly says:

> Whether from a historical or a practical standpoint, we thus find that prognostic investigation has progressed by successive stages from anatomical lesions to functional disturbances and chemical changes, until it has reached the stage where judgment is based on criteria of a dynamic and vital order. If diagnosis consisted simply, as Pinel would have it, in "assigning to a given disease its proper place in nosology" it would be a most fruitless and conventional effort. Our conception is a very different one; for us diagnosis signifies the recognition, as perfect and precise as our means of investigation will allow, of a morbid condition considered in regard to its origin, its present state, its future course.
>
> The pathological life of an individual appears no longer merely as an interrupted series of isolated episodes; but we try to discern its unity, to follow its continuous course and take into account the sudden and sometimes final deviations and the new pathological directions that may be given to the organism by an intercurrent disease.

Evidence is accumulating to show that, among the many functions of the thyroid gland, one of the most important is a protective action against circulating toxins. Complete removal of the thyroid leads, not only to myxedema—a condition which may be cured partly or completely by the administration of its internal secretion—but also, as is well known, brings with it a considerable risk from a rapidly fatal toxemia. My humble opinion, based upon the successful treatment of goitre by fasting as a means of sterilizing the alimentary tract and of correcting the abnormal chemistry of the entire organism, followed by re-educating the patients out of their abnormal emotions, is that the emotions cause the gastro-intestinal disorders which are always associated with goitre, save where drinking water is responsible for the toxins producing the disease.

We are completely ignorant of the mode of transformation of chemical into kinetic energy

in the living organism; we only know that muscular contraction is accompanied by a change of form; that at the moment of transformation the combustion of the muscle is increased, and during contraction the stretched muscular fibre tends to acquire a spherical shape. It is this shortening of the muscular fibre which produces the mechanical movement.

The step which we do not as yet fully understand is the physical phenomenon which intervenes between the disengagement of chemical energy and the occurrence of muscular contraction.

Is it not at this point where intellect or consciousness, the psychic component, comes into play as the determinant in the exercise of its influence upon the material chemical elements of the organism and guides and directs its movements? Is not this intelligence or consciousness also universal and is it not the most needed factor by human beings, sick or well, that its exercise may liberate the potential energy inherent in the human organization and guide its movements in relation to his environment for the purpose of acquiring a higher degree of psychophysiological potential in order that he may withstand the draft made upon his powers in the struggle for existence?

Is it not a fact that the diseased human organism needs more than anything else the specific stimulus of spoken words, ideas, concepts, viewpoints—education in short—to be conserved by his neuron elements as a part of his personality to enable him to use his potentialities as an adaptive mechanism in relation to his environment?

By the results that actually accrue from the employment of these measures for the accomplishment of a definite end, in its application to the treatment of all disease and for the reestablishment of health, I do not hesitate to assert that herein lies the most efficacious therapeutic remedy at our command and that its efficacy is precisely commensurate with the intelligence and the motive of the physician employing it.

The human being as an adaptive mechanism is constructed with potentialities striving for the accomplishment of a definite purpose, i. e., self preservation and species preservation; the instinct of nutrition and reproduction. Personality itself, either regarded from the psychic or physical component, is but the result of the strivings of these primitive instincts. In every case of illness, matters not what be the terminological diagnosis, we face a human being whose evolution has been retarded or arrested and the bacteriological findings as well as the gross pathology, to say nothing of the symptomatic manifestations of the psychoneuroses, such as neurasthenia, psychasthenia, dementia praecox and other grades of nervous and mental diseases, as well as of all disease processes, are but an expression of a retardation or inhibition of the motor mechanism due either to inherited inferiority, a misadaptation to enrivonment or to a lack of psychophysical potential. Herein is the cause back of the bacteriological factors in disease and of gross pathology as well.

The conduct of each and every individual, in whatever department of life, is the logical outcome of the aspirations of primitive or purely animal instincts. It is likely that these are one and the same thing for in the last analysis all life centers down to and resolves itself into the problems of self preservation and preservation by propagation of the species; for the desire to preserve the species by the begetting of offspring is but a desire, from another point of view, to extend our life beyond our present existence, to project our influence into future generations, in keeping with the law of evolution in general. The importance of this line of thought to the successful practice of medicine cannot be exaggerated.

Heretofore physicians have studied the various parts of the human body and they have obtained a knowledge of the structure of its separate cells and organs. They have, in consequence of this mode of investigation, treated this or that organ such as heart, kidneys, liver or glands, directing their therapeutics, whether medical or surgical, to reach these parts only.

Today we recognize that no organ or structure exists for itself alone but that every structure, organ and part functions in perfect correlation with the brain cell elements and that these collectively are designated as the personality. In other words, we are more and more coming to the viewpoint of seeing the individual whole and seeing him continuous, recognizing that what he is at any given moment, whether in health or disease, is the end product of all that has gone before him.

He is regarded as a mode or manifestation of life, intimately dependent upon his environment, his thoughts and his habits.

The physicians who are rendering the most efficient service to mankind today are those who are endeavoring, through an appeal to the intelligence of their patients, to maintain the efficiency of each individual as a composite organism. They are endeavoring to so equip their patients by teaching them the relation of cause and effect, thus qualifying them to adopt the healthful habits of life, that they can be self-reliant, independent, capable and happy. They are not merely treating symptoms or cutting out the gross physical manifestations of disease which in themselves are of small indicative value, however much they may claim the attention of the sufferer. Nor are they merely treating their patients in spots, such as eyes, nose, throat, heart, lungs, liver, stomach, kidneys, nerves, genital organs, etc. They are recognizing that there is such a thing as the correlation of organs and functions and that every organ, function and cell is mutually dependent upon every other part for its own harmonious existence, as well as upon the external factors which contribute to the development, maintenance, and stability of the individual in his entirety. By taking all of the factors into consideration that contribute to the making of the individual patient, whatever may be his pathology, we are enabled to predict what his future will be, unless a modification or change in his habits of thinking and acting is brought about through re-education.

Education means change. Things are brought about that otherwise would not happen. We can change, that is, educate, any power of body or mind. We can re-educate and develop new capacities, capabilities and powers by the psychophysical stimuli of spoken words, conveying ideas, concepts and view points, to be conserved by the brain cells of our patients, to function forever afterward as a part of their personality. Truth itself is organic and has a definite structural arrangement in the brain cortex. When once imparted from personality to personality, a new element has been added to his psycho-physiological equipment. Education means to lead out, to develop, to re-create, or to re-construct. By passing along to your patients helpful, truthful, practical ideas such as may be needed by each according to his or her individual necessities, we can enable them to become efficient, capable and happy, even as we are ourselves, *Mens sana in corpore sano.*

A diagnosis of each individual case, both psychological and physical, be it functional or gross pathology, parasitic or chemical, is the first step toward the understanding of our patient. Psycho-analysis enables us to locate the inhibitory or harmful suggestions, the psycho-physiological depressants, which have been conserved by the brain cortex as the result of false education.

It is not so much the "sexual traumas" which have proven harmful, as the Freudians would have us believe, but the harmful interpretation of the natural experiences common to every human life, which has produced the baneful results. People who do not know are easily startled by false suggestions, or false education, whether coming from the pulpit or from any other source. Those who are educated so as to be qualified to adjust their lives in harmony with their external relations, do not suffer from "psychic traumas."

Many books and journal articles have appeared claiming an especial preference for this interpretation or that, but whatever be the technic or mode of psychotherapeutic or psychoanalytic application, the results are in conformity to a common law. The only trouble is that many recent writers are but giving ideas that are the result of some narrow view point, forgetting that they are proving themselves to be the hypnotic subjects of the man who places an especial emphasis upon "sexual traumas."

A human being is in the highest degree of suggestibility at the point of the emotions and since these "traumas" are the common experiences of mankind the physician feels that the "sexual theory" is true because his own emotions are set into vibration by the writer's suggestions. If the reader had only devoted more study to the fundamental motives of human conduct, as well as to the external forces at work in shaping view points, convictions, ideals and concepts, he would soon realize that merely a subjective study of the patient will not suffice. All of the factors coming within the patient's environment, educational, religious, social, occupational, economic and dietetic, contribute their quota to making the in-

dividual what he is, whether in health or disease, as does also his inheritance.

With the confidence and co-operation of our patients, such as is possessed by the average general practitioner, we can take the human body and do with it what we will, if only we are willing to direct our efforts for the welfare of our patient and are not merely seeking our own self-aggrandizement. By the application of known and well demonstrated laws of physiological chemistry, physics, biology, physiology and psychology, with the aid and co-operation of the intelligence of our patients, we can initiate procedures that will re-arrange and renew the molecular elements of every organ, tissue and cell in the human body. We can make it hot or cold, lean or fat, weak or strong, functionally active or inactive, happy or unhappy, long lived or short lived—limited only by the dynamisms of our patient's psycho-physical potentialities and the willingness on our part to make the effort required to promote his restoration.

We can avert fully nine-tenths of the surgery that is being done at the present time, heighten the immunity of every cell in the human body, prevent cancer, Bright's disease and tuberculosis, and increase the living and working efficiency of more than one-half of the inhabitants of the United States fully fifty per cent. It is simply a question of the intelligence possessed by the physician, as the result of inheritance and training and his ability and willingness to wield this instrument of power in behalf of the sufferer by making an appeal to *his intelligence*, instead of seeing "disease" merely in spots, or of simply using drugs to attack the invading parasites, however important such work may be when gross pathology is in evidence, or when our patients have become infected.

Clinical medicine and its application at the present time is far behind the scientific data that is available. In other words, medical practice and art have not kept pace with the scientific discoveries of the age. By making application of what we know at the present time or what is available for us to know, diseases of the blood-vessels, heart, kidneys, stomach, liver, pancreas, spleen, intestines, bones, muscles, lungs, blood, ductless glands, nerves, viscera, etc., are yielding to psychochemic treatment, just in proportion as we are enabled to secure the co-operation of those needing our aid.

Generally speaking, people have only been educated to allow themselves to be carved and coddled in hospitals, as a means of cure, rather than taught to exercise the privilege of living a sane, normal, efficient life. In the absence of a keener appreciation of the privileges of a normal life, they are forced to furnish their bodies as "material" for operative procedures, while their personalities are being annihilated by priest and clergy, their reason dethroned under the guise of "religion," while physicians are too often the followers of these human parasites, frequently lacking the intelligence and manhood to free themselves from such hypocrisy, and to get their patients to do likewise.

*Not one person out of five in the United States will be found normal by tests employed to determine whether he or she is psychologically, physiologically or chemically right and the physicians that are qualified to correct these psycho-chemical abnormalities have hardly begun to appear upon the field of action.* Such work requires qualification, time, energy, courage and the willingness to find your own sustenance and happiness in life by promoting the welfare of others rather than merely using them for your own self aggrandizement. Over one-half of the deaths that occur in the United States every year are the sequelae to conditions that could be diagnosticated and treated ten years before a physician is usually called, so insidious are the incipient psycho-chemical abnormalities that terminate in gross manifestations of "disease."

Only a comparatively few of the deaths occurring in the United States every year are due to bacteria, or are of infectious origin. The state medicine already in force has well nigh put an end to such diseases, while the deaths due to violation of known psychological, physiological and physical requirements of health are increasing every year. These lives (over 500,000 in the United States every year) could easily be saved by the rational employment of educational methods, applied to the needs of each individual patient, could we but educate the laity to consult us in time to render them service. The field is white unto the harvest, while the real cause of disease is in operation in full blast.

Under the existing educational and religious training, a child is taught that his natural instincts are vile, low and sinful. These instincts are the impelling forces that activate his internal and external bodily movements or activities both mental and physical. A conflict is thus eternally going on between the acquired intellectual components of his personality and his instinctive promptings and he is unprepared to meet them. Self-condemnation, remorse, nervousness, phobias, unhappiness and torture are the result. He may, as a protective mechanism, crowd out of his consciousness the association between the reactions of his primative instincts to environmental stimuli but he is under a greater nervous tension than ever before and symptoms galore put in their appearance.

His reaction to the stimuli of environment is manifested in painful sensibilities. Sight, hearing, taste, touch and smell are all avenues through which painful stimuli reach the disturbed sensorium. Insomnia, nervousness, indigestion, constipation, autotoxemia, intestinal stasis and all of the resulting syndrome and sequence follows, under various types of mental and physical "diseases." His resistance to bacteriological invasion is weakened and in his body parasites easily thrive and reproduce themselves with their disastrous consequence to human life.

Only about three per cent of the human race die of senility. The disturbed eqlilibrium of the human organism due to theological hypocrisy so prevalent at the present time forces those who are unprepared to react to such prevarications to seek relief from subjective bodily sensations, manifested by "diseases" of the eyes, ears, nose, throat, stomach, heart, liver, genital organs, or nervousness, insomnia, obsessions, hallucinations, etc., and they seek aid from the surgeon, the specialist for eyes, nose and throat, the general practitioner, the electrician, the hydropath, the osteopath and neurologist, while the real cause of his disturbed equilibrium is still in operation to conduce to the further development of gross pathology.

These sick people do not know whom to seek or what it is from which they are seeking relief. Where opportunity presents itself, we can take these undeveloped patients, learn what they are, who they are, what it is that has made them as they are, finding the cause of their pathology (*and the religious component is never absent*), and give them treatment not only for results, be these psychological, parasitic, microbic, chemic, or gross expressions of pathology, but we can show them the cause in the light of the present day teachings of modern science—biology, physiology, chemistry, physics, geology and astronomy—thus making rational employment of suggestion, or re-education, and this is the treatment that is bound to predominate in the future work of the well qualified physician. Such work insures not only relief for the present, but prevention for the future. The people will co-operate with the physician making employment of such measures, just in proportion as they become aware of the incomparable therapeutic results that accrue from their administration, and we thus will deserve their confidence as never before in the history of the medical profession.

Such work is not merely a fanciful ideal but has in my experience been a practical, useful, every-day actuality for the past twenty years, though I never neglect other well demonstrated therapeutic agents. For the last five years of my work, every patient treated by me has yielded a satisfactory result, save one who frankly insisted that she preferred to terminate her life, which she had twice attempted before coming to me, and two others who were handicapped by incompatible social relations, or misadaptations. As a result of re-education, this suicide patient gained twenty or more pounds within two months, though she terminated her life by the self-administration of bichloride of mercury, after she had so far improved that I felt that she could be trusted to care for herself, preferring this course to taking up life under self mastery.

This patient, a college graduate, frequently stated and reiterated that the light that I had given her would have been all that she would have needed to have lived a happy, efficient, and useful life, if only such guidance had come at an earlier period of her life, instead of having been all her life long blinded by traditional superstition.

Notwithstanding the benefit that has accrued to humanity from the discovery and isolation of disease producing germs, a great cause of unhappiness, disease and death is still in operation in the churches throughout the country and if only we dare exercise the courage and the intelligence

to recognize the true relation of cause and effect there is still a greater work before us. We should take such measures as to combat these life and happiness destroying agencies for the benefit of those whose lack of educational qualification render them incapable of protecting themselves.

Scientific education, as a therapeutic resource, is worth all of the therapeutic agents generally employed combined. By its employment from the kindergarten to young man and womanhood, the insane asylums and penitentiaries and hospitals can be deprived of their inmates, and our commonwealth can be made to deserve being called civilized. By the so-called educational methods in vogue at the present time, life is suppressed, personality is annihilated, and millions of our American citizens are held in captivity not only to their hurt, but to their actual destruction.

Seven hundred and fifty thousand people in the United States are dying annually of the so-called degnerative diseases, and with the incontrovertible evidence staring us in the face that half of these—that is 375,000—would not die if the average health, from middle age upward, was as good as it was thirty years ago, notwithstanding the increase of the general average of human longevity as the result of the decrease in infantile mortality. We should not be disposed to take such conditions in complacent acquiescence.

Furthermore, Sir James Crichton Brown, the president of the Section of Psychiatry, at the Seventeenth International Congress, stated:

> That all countries from which trustworthy statistics were available showed an increase in the number of lunatics out of proportion to the increase of the population. Comparing the United Kingdom of today with 1859, the notified insane had increased by 276 per cent, while the population had increased by 87 per cent. This disquieting fact, says he, cannot be fully accounted for by more accurate registration, or by accumulation in asylums of chronic patients. There seems to be no good reason why insanity should have increased while the health and material condition of the people had markedly improved. The segregation in asylums of a growing number of insane during the period of sexual activity ought to have diminished the influence of heredity. There are also other factors which should have checked insanity, the diminished consumption of alcohol, the better treatment of tuberculosis and the diminution of sepsis and syphilis.

The situation is equally as disquieting, if not more so, here in the United States, and there are some of us who are unwilling that the present useless wholesale loss of life should continue without raising a word of protest.

During my last five years of professional work, I have found, practically with all patients, that emotional manifestations were exhausting the brain cell potentialities and interfering with its function as the central battery which stores the energy that presides over the entire physiological machinery. Among them were those with cardiovascular manifestations of disease, high blood pressure or low pressure associated with cardiasthenia as the result of abnormal emotions, as well as degenerative changes in the kidneys, liver, pancreas, blood, ductless glands, respiratory organs and central nervous system.

All emotions are associated with one or the other of the two fundamental instincts, i. e., the self and the species preservative instinct. I repeat again, the result of re-educating these patients so as to equip them to express such emotional impulses by work and useful endeavor or to guide such instincts by reason not held in abeyance by fear, dealing with the facts as they are in this world as demonstrated and taught by the doctrine of evolution, has resulted in the cure of epilepsy, the depressive psychoses as well as the psychoneuroses and other mental and physical conditions to which we have given a thousand names, which are not diseases but are the logical outcome of environmental influences which are exercising life stifling and degenerating influences upon our present civilization.

It is the right, and should be the privilege of human beings to be strong, capable and free. Freedom depends upon the absence of external compulsory motives and therefore upon the fact that not sensations alone but also the images of memory determine our movements. The will is powerless in the presence of a stronger emotional tone and greater associative affinity of the prevailing idea. Hence our actions are as strictly necessitated as our thoughts, for both action and thought are quite identical when viewed in the light of their fundamental characteristics. Both are governed by the same laws; both are associations of ideas or neurone responses to adequate stimuli.

It is through the incitement of the emotion of fear that priests and clergymen are holding and dominating and exploiting our defenseless and

unsuspecting masses, and using them for self-aggrandizement. Capital is strongly supporting and encouraging the church in its nefarious occupation, though there are occasional exceptions to this statement, since it can by aid of the church to disorganize their equilibrium better control the ignorant laboring classes and use them for its advantage.

Licentiousness also has its origin in our abnormal social and economic condition. To train an individual to be governed by emotion in religious affairs and expect him to be governed by reason in relation to the external world, in harmony with external environmental processes, would be to expect him to go in direct opposition to his training. When the normal mechanisms are rendered unstable or taught to respond abnormally, how can we expect the individual to be harmoniously adapted to his external environment?

Another means by which the masses are controlled and exploited is by the enslavement or control by the church "authorities" of the libido or sex life of the female devotees, by the stimuli of songs and sermons filled with sentiments of love, love for the Nazarene, for a "holy virgin," for a conception of an anthropomorphic diety, by which they become so integrated as to be held as if by chains. The priest or minister presuming to be the representative of this "Beloved Son of God" or his father, is the unconscious object stimulus of the congregational female libido and he thus perverts and controls the sex life of the woman and through this female sex control enslaves the man.

Capital monopolizes and controls the raw products of industry by which is obtained the bread which fills the laborer's empty stomach and this completes the enslavement. Together, thus church and capital are marching hand in hand, the tyrannous captors of the masses, holding them in slavery ten times more despotic than ever characterized the ownership of the "black slaves" of the south in the days of openly recognized and legalized "slavery," for the control is not only economic but social as well and it is used not only to their hurt but to their actual destruction, while they are duped by having their emotions aroused by inciting fear of punishment or an assurance of reward in another world.

Not only does this degrading state of affairs jeopardize the sanity, happiness and life of the enslaved captives, inhibiting their psycho-physical potentialities, lowering their vital resistance and predisposing them to infections of every nomenclature, positively creating gross pathology for the surgeons at an ever increasing rate but it actually destroys the harmony of the conjugal relations between man and his wife among the "higher" and "lower" classes, positively preventing a happy and normal marriage relation, inhibiting the development of the higher brain centers, lessening their educability or intellectual development and hence is a frequent cause of divorce, suicide and murder and of the disruption of the home.

In their sanctimonious garb these destroyers of human life, these creators of insanity, criminality and prostitution, are allowed an ever widening freedom and there are "physicians" who acquiesce in their doings since they can participate in the spoils.

I do not believe that the report that "seventy-five per cent" of the men of America are infected at some time during their lives is true. My own observation among men of all classes and under all conditions of life, forces upon me the conviction that this estimate is more than three times that which the actual facts will warrant. Be that as it may, is it any wonder that such a large per cent of married men seek the more normally sexed woman and become infected with venereal diseases by which innocent women are contaminated, the sight of unborn children destroyed, the stability of the nervous organizations of others undone, to say nothing of the influence of this deplorable state of affairs in conducing to the ever-increasing enrollment of the insane, while others by the hundreds of thousands are needlessly taking refuge in the grave, many of whom take the route via the surgeon's clinic.

The surgeons are not to blame. They are doing their best to repair the consequences of the prevalent ignorance and selfishness that is so much in evidence. The physicians who have been forced to acquiesce in this deplorable state of anti-social affairs or in this modern slavery should not be condemned. The cause lies deeper than in the open violation of duty on their part. They have been unconsciously co-operating with a diseased condition of the body social that is a

disgrace to our American civilization, which our sociologists, psychologists, political economists and state and national representatives must solve in order to enable physicians to secure the necessary co-operation of the people so that they can do their work and be true to the highest dictates of conscience, true to their professional calling and true to the highest ideals and enlightenment of American citizenship and, to relieve this state of affairs, we must create a science of education, a science of health and a science of conduct adapted to the needs of our common democracy.

Physicians are only men and they are placed under conditions of life into which they were born, with which they are powerless to cope except by the rules of the game, since a certain degree of harmony between the organism and its environment must exist, if life is to be conserved and happiness maintained. The social environment is at fault. Hence the recommendation of the council of education of the American Medical Association for state medicine was, it appears to me, inevitable as the solution of the problem so imperatively pressing is a social affair and not one that can be handled by any single group or body of men.

I believe that the entire profession of America, by that I refer to the medical profession, stand ready and willing to co-operate in any way that will be for the best interest of the larger social organization. At heart they are honest and sincere men. The masses are just beginning to awaken to a realization of the necessity of guiding their lives in harmony with the philosophy of modern science. Instead, they have too long followed the outworn traditions of the past, to the destruction of the life and sanity of millions of our defenceless men, women and children.

With the facts that I have here endeavored to present as a means of stimulating the process of readjustment, the equitable solution of the problem should not be an impossible task.

Do not imagine that I am laboring under the delusion that I am standing alone. In the medical school and out of it, there are millions of evolving organisms though the conviction is strong that we are beginning to enter into a more independent, practical and trustworthy relation to those needing our assistance and that our greatest work is to be done *with* and *for* and *among* the people who do not yet realize that the greatest friend to mankind is the honest, plain, common sense, well educated physician.

Twenty years after leaving a denominational college in the south, it was my privilege to renew my association (briefly) with two of my former classmates, who had chosen the ministry as their life's work and it was an astonishment to me to find that there was no inharmony existing between us concerning such questions as those that have been discussed throughout this entire paper. Although we were reared upon "orthodoxy" and steeped in "biblical lore" by the greater part of our college environment, our lives had been touched by that masterly man of science, the founder of the Georgia Institute of Technology, Isaac S. Hopkins, the former president of Emory College, whose influence from the professor's chair and from the pulpit, where he passed on to the receptive minds of his students the message of Darwin, Haekel and Spencer, overbalanced the effect of all other college environmental stimuli combined, so responsive was the nervous mechanism to ideas that were true. No one factor has contributed so much to the present commercial prosperity, intellectual awakening and scientific development of the entire southern states as this school of technical training under guidance for twenty-five years, up to the time of his death two years ago, of this truth-loving man, aided by an able body of trained scientific experts—a man who left traditional ignorance and superstition to be a real helper of mankind.

Facing as we are a new era in civilization, dead, doubly dead must be the physician who is unable to respond to the crying needs of mankind, and lend his influence to combine the efforts of all people, of all classes, of all avocations, trades and professions, guided by the light of science, for the common welfare of every man, woman and child living upon American soil, whether we are headed by a Wilson, a Roosevelt, a Debs, or a Suffragette.

Regardless of nationality, of politics, of profession or avocation, of race or of creed, is it not time for us to shake off the influence of the dry bones of the past?

In spite of wealth or of social position, be we "high" or "low," rich or poor, protestant or catholic, gentile or jew, are we not willing to come out into the broader light of freedom and happiness, breaking loose from the bonds of our ignorance,

weakness and slavery, and together work for the life, sanity and efficiency of democratic America?

Intelligent, as distinguished from purely instinctive action implies educability and a high order of intelligent action implies a correspondingly high degree of educability. Lacking the necessary stimuli, however, psycho-physical capacity may for long ages remain dormant, unrealized. The problem that should most concern us today, both physician and patient, people of all classes, is how to obtain the necessary stimuli. It is the problem of true educators in every department of life, and it is the problem of the scientific physician, i. e., how shall we get the masses to bring their lives under the guidance of science, rather than continue to submit themselves to the degrading influence of traditional ignorance and superstitition, under the cloak of "religion."

The highly evolved human intelligence, the mental factor, as the result of education or training, the influence of environment, is the prime factor in the maintenance of human efficiency; and this supreme psycho-physical factor, when undeveloped as the result of inadequate or abnormal stimuli, is the chief cause of delinquency, vice, crime, insanity, suicide and death, either directly or indirectly.

Do we not need a national system of education, in harmony with biological science, purposely devised for the development of the individual and the evolution of the species?

---

## INSIGHT IN CASES RECOVERED FROM MANIC-DEPRESSIVE ATTACKS.

S. N. CLARK, M. D.,
STATE PSYCHOPATHIC INSTITUTE
KANKAKEE, ILL.

Insight, or perhaps it would be better to say full insight, on the part of a patient for a past mental disorder may be said to be an understanding of his condition during the attack; that is, an appreciation of the abnormality of his actions, mood, delusions or hallucinations, and in certain cases some knowledge of the dependence of these features upon each other.

It is impossible for a patient to have insight for a period of which by reason of clouding of consciouness he has no recollection. Extreme distractability, retardation of thought or concentration upon certain distressing thoughts may result in inattention to one's surroundings and consequently a failure to form memories of them. It is to be expected that an individual of low intelligence would be lacking in an appreciation of an attack for the same reason that he has deficient knowledge of other things.

Insight, at least for that part of a mental disorder which is remembered, is ordinarily considered as a criterion of the complete recovery of a patient who has suffered from any psychosis

Since manic-depressive insanity is commonly considered as a recoverable psychosis it might be supposed that all who had passed through attacks of this disorder would have insight.

In the latest edition of his text book, Kraepelin speaks of cases of manic-depressive insanity who lack insight for the attack. His remarks on the subject may be translated as follows:

> Frequently the patients obtain no full clearness as to the extent and meaning of the disease. They admit that they have been excited or sad, but lay the blame on accidental circumstances, the attitude of their environment and the fact of being brought into the asylum. They do not care to be reminded of the period of disease and avoid all discussion of it. They get out of the way of the physician if they happen to meet him later. Some patients, who are still somewhat excited, complain of those things which happened during the attack, such as the alleged illegal robbing of their freedom, or they give a description of the attack in a half humorous, half indignant, but always very personally colored manner.

Among the records of cases of manic-depressive insanity admitted to the Kankakee State Hospital, 148 were found in which a more or less definite statement was made in regard to the insight of the patient for the attack after its acute manifestations had subsided. Of these 123 or 83 per cent were said to have had insight, while there were 25 or 17 per cent without.

There were 106 who had passed through a manic phase. Of these 82 per cent had insight. Those of the depressed type numbered 30 of whom 90 per cent had insight.

Five cases had passed through a so-called mixed type. There were only three of these, a relatively low number, who had insight. These cases are too few in number and not sufficiently studied to justify definite conclusions regarding them.

Of seven cases of the circular type two had

insight for the depressed state but not for the manic.

These figures suggest that the great majority of cases recovered from the disorder in question have more or less insight and that this is somewhat more apt to occur after depressed attacks than after the opposite state. Conversely they would seem to show that a certain per cent of the cases which are called recovered do not have insight.

Nothing more than very general conclusions are warranted, for the information was in many cases contained in a bare statement that the patient did or did not have insight and in some instances its occurrence was qualified as partial, slight or in some other term which left one much in the dark as to the actual state.

In view of Kraepelin's statement it may be taken as a fact that some manic-depressive patients do not have full insight and yet must be considered as recovered. This last term does not mean that a patient of this sort has returned to a state in which there is no vestige of the condition on account of which he was called insane but rather that he has returned to his usual state, one in which as is well known affective oscillations occur. Since the actual psychosis as well as the slight oscillations of mood, which in mild degree are commonly found in these patients, are but the reactions of a certain type of individual, it might be expected that all features of the psychosis would depend upon the type of personal make-up. One may therefore look to the personality of the patient with the view of finding an index of the amount of insight which will be present. Two cases may be briefly reported here; one with, and the other without, insight. One seems to show quite definitely a make-up which would permit of a realization of the nature of the situations which transpired during the psychosis whereas this is not so in the other.

*Case 1*, Mrs. Z. The mother committed suicide at 35 years of age. She had been in an insane hospital at one time. A brother committed suicide and one sister is "in poor health, suffering from neuralgia." It is stated that "there never was a generation in which there was not a suicidal tendency."

The personal history is unfortunately quite meager. From it is learned that the patient "has always been depressed," although the statement is made that she was "normal in her childhood." She is said to have been "bright in school."

At 27 years of age she passed through a period of depression lasting two weeks and another of one month's duration when 31 years old. After each attack she returned to her normal state. At 43 years of age she again became mentally disordered and was sent to Kankakee. There she passed through a period of about two months' duration, characterized by marked depression, some evidence of retardation and at times considerable agitation.

A portion of the catamnesis as obtained from her after she had returned to her normal condition is given here. She had been feeling badly. She began to worry for fear she could no longer support her children. "Everything seemed like a mountain. It seemed as though I couldn't lift my feet or raise my hands to my head. I don't remember for three days before coming here. The trip here seems like a dream. I remember being on a train with two women, one my sister. I remember something about coming in, but I don't remember whom I saw." The patient had no recollection for some of the formal happenings but said that she always realized her own identity and appreciated things said to her, although she sometimes misidentified the speaker. She thought she was told to get out of bed, but there was nothing else that suggested hallucinations. She was at all times depressed. She believed the day of judgment had come and all her children had been ground to death in a sausage machine. She feared her fate would be a much worse one than that of her children and supposed someone was coming after her whenever anyone entered the ward. She thought she was going to be judged and punished at the staff meeting. In describing her state of mind she said "It was terrible." She kept thinking she might have been better to her family, etc. That she realized that she had been in an abnormal condition is shown by her statement. "I was mentally unbalanced." "I was not mentally responsible." Even if someone had given her money enough to insure the support of her children at the time when she worried most about that question she would have continued depressed. This also shows that she appreciated the fact that she was in a state which was not normal for her. Her attitude of accepting the statements and opinions of others was shown by her remark, "If my sister should tell me she wasn't with me in coming here, I'd believe it." "I listened to the other patients and began to realize what sort of place I was in and supposed I had been sick mentally. I was so relieved when I found I was not to be punished." She had been told that she was placed in the ward for the acutely disturbed and was asked what she could conclude from that fact. She answered, "I suppose I'd been pretty bad." This was despite the fact that she evidently did not like to think she had been disturbed.

This patient very evidently had very good insight for those things which she remembered. There was a very fair appreciation even of those things that she did not know at first, the char-

acter of her surroundings, etc., and the occurrences of which she had no recollection, e. g., being moved from one ward to another. This seemed due to the fact that she was on good terms with others and was willing to learn from them.

There was evidently the same attitude in meeting those problems which occurred during her ordinary life at home. People were always good to her and she never had quarrels with her relatives or her neighbors, "could get along with anyone." Her teachers were kind to her when she was going to school. Her husband was very good to her although he sometimes did not give her quite enough money to pay all the household expenses. When the patient was 38 years old her husband left her. It was learned that he had appropriated for his own use some of the money belonging to the firm for which he worked. There was a rumor that he had run off with another woman. Although the patient was greatly shocked and "hardly cared to live," she made up her mind she would have to make the best of the circumstances in which she found herself. She went to work and supported her four children. Both her husband's relatives and her own were kind to her at this time. The latter wanted to pursue the husband and bring him back, but the patient said that if he did not want to support her, she did not want him to do so.

Her attitude at Kankakee after returning to her usual condition bore out her statements in regard to her way of meeting situations. She was cheerful, quiet, on good terms with all and in fact was congenial with some with whom most of the others could not get along. She believed her relatives were acting in her best interest when they brought her here.

*Case 2,* Mrs. X. Nothing of importance was learned in regard to the family history. The patient had a high school education. She was always of a "nervous disposition," given to outbreaks of anger and periods when she was restless. Although she was generally happy and looking for fun the "tears were always near the surface" and she grieved about trivial matters. An unstable affectivity is shown here quite clearly. One fact of special interest in the anamnesis is that throughout the patient's life she has been one who was determined to have her own way despite the wishes and rights of others. She never would admit that she was at fault in any way. As a child she would hold her breath when crossed. At one time she would not breathe and became apparently unconscious. Her father snatched her up and it happened that her head was bumped. The shock brought the patient to herself at once. This incident was said to characterize her behavior throughout her life; that is, she met all opposition by any defense available whether that defense was justifiable or not and regardless of the trouble it might make for others.

At 38 years of age after nursing her child through an acute illness she had an attack of three weeks duration in which she "was decidedly talkative and restless." The patient denied the truth of this description but said she had a "nervous breakdown." She admitted that she had tried to jump through a window and did not try to explain her action except by saying that just at that time a friend of hers was being operated on and through some supernatural means the patient realized her friend was going to die. It is possible that the patient was clouded during a part of this period.

She apparently recovered completely from that attack. At 44 years of age shortly after the death of her husband she passed through another mental disorder characterized by an elevated mood, pressure of speech and activity and distractability with fairly clear grasp of the situation. This condition was followed by an apparently complete restoration to her usual condition. Even at this stage she showed an inability to consider anything but her own desires. She quarreled with the other patients, became angry on slight provocation and cried readily if she thought she was rebuked, although she met any charges with excuses and a defense which was at the expense of someone else.

Insight was lacking. In spite of a very definite history of having been restless and nervous for several days before commitment she denied that she had been other than her usual self until the day before this took place when (so she alleged) she was attacked by a certain merchant's assistant. It is known that the patient went to the merchant's shop to get an article of dress belonging to her, but the balance of the history as to what occurred in the shop is lacking except as given by the patient. According to her statement she struggled with the assailant for over five hours. A relative of the patient stated that the latter "went insane" while in the shop and that it "took two policemen to lock her up." The alleged assailant actually disappeared directly after the episode.

The patient said she was asked to go to the police station to testify against the man who had attacked her. While there a doctor gave her some medicine because she was slightly nervous. This "dope" as she expresses it, made her more nervous and the judge sent her to Kankakee, although she denied that she was more nervous than anyone would be who had passed through a similar experience. She thought there was no reason for placing her among other

restless patients. She admitted having broken a window but said she did so because she wanted fresh air. Restlessness, talkativeness, and exhilaration were denied. It will be noticed that some one else was always to blame for the situation in which the patient found herself; her assailant for making her nervous (at least it is known that she had been so for several days before), the physician for giving her too much or the wrong kind of medicine, the judge for sending her to an insane hospital without cause, the physician for keeping her on the disturbed wards, etc. The nurses, the other patients and her own relatives all received their share of her condemnation.

In this case it is evident that the reaction of the patient toward the attack bears the same stamp as her attitude toward other occurrences in which she has found herself at a disadvantage. There is an unwillingness to accept any view in conflict with her own and a tendency to lay all blame upon others, which made it difficult for her to get along with anyone. This was shown by the fact that even though her relatives admitted she had returned to her usual state they were not anxious to take her to their homes.

The cases reported above have in common certain factors which might aid them in forming a conception of the past disorder. I refer to the indubitable fact that each was adjudged insane by a jury or commission, that she was sent to an insane hospital, that she was placed among other restless patients and given certain treatment and that finally these things were discussed with her by her relatives, the other patients and the physician in charge. One of the patients accepts these facts and uses them in forming her conception of the attack. The other looks at her psychosis in a way that reminds one of Kraepelin's statement that certain patients still suffering from some excitement give a description of the attack in a "very personally colored manner."

The important factor here is that each views those things which happened during the psychosis in the same way that she views everything throughout her life. In other words the fact that one has insight and that the other has not, is due to an individual type of reaction, a manifestation of a certain personal make-up.

In speaking of insight and using this as a criterion of recovery, type must be weighed.

In conclusion I wish to thank Dr. H. Douglas Singer for valuable advice in the preparation of this paper.

DISCUSSION.

Dr. Solomon: The lack of insight in manic depressive insanity is rather common, I believe, amongst the negroes. A lack of insight is due to the constitution of the individual or to the fact that the manic depressive has a certain admixture of dementia præcox.

Dr. Cohn (of Kankakee): I enjoyed listening to Dr. Clark's paper. On the whole it meets the same experience that I have had in the care of many depressives. I find that the main factors which decide the insight of these cases, after recovering, is, first, the original mental status of the individual. Secondly, the intensity of the insane attack, whether that attack was intensely maniacal or had a great deal of retardation. I doubt that a recovered maniac has no insight at all. It is true, they distort the things which occur during their insane attacks, but there is some resemblance to what actually occurred while they were in the attack, and, therefore, I have concluded that they have insight in a greater or less degree.

Dr. Clark (closing): I was very glad to hear all the remarks under discussion. In regard to Dr. Solomon's statement about the negroes I should judge that would be much the same for the reason that we find the majority of negroes are a lower class. The remarks about dementia præcox, that it is due to an individual type of reaction, I agree to and that the excited patient perhaps is due to the type of personality, I also agree with. The type of attack spoken of by Dr. Cohn I certainly think would be a factor and for the same reason that we also have to do with the type of person who has it. I agree with Dr. Cohn there is no case of mental insanity where it is not proven that he has passed through some sort of an attack.

In conclusion I only want to say one thing more. There is, at least as far as I could find, no literature on this subject, except little bits here and there. Therefore this paper had to be made up without recourse to literature and is simply a contribution. There remains much to be said.

---

*Tuesday, July 14, 1914, 9:00 A. M.,*
*Hotel La Salle.*

## WISCONSIN'S FIGHT AGAINST DEGENERACY.

F. I. Drake, M. D.,
WAUPUN, WIS.

To grieve for the glories of a social condition that might have been and to dream of social Utopias that may not be, are equally unprofitable diversions. The past is gone beyond recall and no future day now holds promise of even an approximate realization of the ideal so vividly

and so beautifully portrayed by Sir Thomas More. Still the modern eugenic program makes entirely feasible and practicable a certain degree of social advancement for which it is well worth while to strive. Such a program is not to be carried out by an effort to breed a race of "giants and geniuses"—No, but by the simple process of increasing the fertility of the fit and diminishing that of the unfit, of those afflicted with grave defects, which may by inheritance affect the usefulness and the happiness of future generations world without end.

In this connection I purpose to speak specifically of such conditions of degeneracy as exist in the state of Wisconsin, and then to note what effect our state war on degeneracy may reasonably be expected to have upon the social status of that great commonwealth. I refer to my native state specifically because of closer acquaintance with conditions there and because I believe such conditions to be fairly representative of those of the country at large. The Board of Control of Wisconsin State Reformatory, Charitable and Penal Institutions has supervision over twelve state institutions, one semi-state institution, thirty-two county asylums, seventy-one jails and forty-five poorhouses. All told there are twelve thousand souls under the care and keeping of this board, or one to every one hundred and ninety of population. This does not include the insane in private sanitoria nor the one thousand or more feeble-minded awaiting segregation. To properly carry on the routine work of these insitutions requires the expenditure of $800,000 annually and the services of thirteen hundred men and women.

When one person out of every one hundred and ninety of population has become a ward of the state, is it any wonder that grave apprehension is aroused? In war, in pestilence or in famine, in times of high taxes or of high cost of living, the one in every one hundred and ninety must be clothed and housed and fed at public expense; for every noble sentiment of humanity bespeaks the care of the helpless and the unfortunate.

I am glad to say that Wisconsin has awakened from her lethargy and indifference and is making a well-directed effort to unload this "white man's burden." In the field of restrictive eugenics, we are waging war on degeneracy. Our last legislature particularly was prolific in restrictive legislation, no less than three important measures having been passed by that body and enacted into law by the governor's signature. I refer to 1, the marriage license law, 2, the law prohibiting the marriage of first cousins, and 3, the sterilization law.

1. The state has recently acquired a great deal of newspaper notoriety through an attempt to enforce a so-called "eugenic marriage law." In reality the marriage law passed by the legislature should have been called a hygienic marriage law, for only by a very liberal interpretation of the word "eugenic" can it be made to include the eugenic idea. Its aim is to restrict the marriage of men suffering from venereal diseases, until such time as a cure shall be effected. The eugenic marriage law to which I refer provides that parties applying for a license to marry shall sign a statement in the presence of two witnesses, that neither of them is epileptic, or insane, or idiotic, and that they are not within the prohibited degree of consanguinity—a perfectly just and reasonable requirement, and one that the interest of the state and the race assuredly demands.

Sweet Nerissa's idle doctrine,

"The ancient saying is no heresy
Hanging and wiving go by destiny,"

is all wrong. It smacks of the pernicious Calvinistic doctrine of foreordination. It only marks time to the steps of human progress and we are looking for progress everywhere, even in the modern science of getting married. Witness the numerous press reports to the effect that people about to be married are giving heed to the teachings of eugenics in this important respect. Here is convincing evidence of a sincere and patriotic desire to do that which is for the best interests of the nation and of the race. Once the custom is established, the thing is done; for custom is a mighty force. Not only are fashions made and unmade according to its dictates, but affairs of real pith and moment in social, religious and political life obey its mandates. Yea, verily, marriage ceremonies and funeral rites are alike subject to its far-reaching influence. And why not the custom of giving heed to the proper conservation of human protoplasm? The most precious of human heritages is eugenic fitness and none is more worthy of being transmitted

unimpaired to future generations. The most wanton, the most cruel of humban heritages is a defective mind or body, and one from whose malignity the state and the race cry out to be saved.

2. The law prohibiting the marriage of first cousins is, on the whole, a salutary measure, for while there are many admirable traits that might be emphasized by the union of cousins who possess the same desirable and no undesirable characteristics, the danger is great that the same latent defective characteristics in both parties may become patent in their offspring. It seems to be pretty well established that both latent and patent characteristics follow the same law of inheritance.

3. Wisconsin's sterilization law, similar to the one in operation in the state of Indiana, provides for the appointment by the board of control of a surgeon and an alienist, who shall co-operate with the superintendent of each state and county institution in examining the mental and physical condition of all persons legally confined in such institution. If these three shall decide that procreation is inadvisable in any case, it shall be lawful to perform such operation for the prevention of procreation as shall be decided safest and most effective, and then only upon the authority of the board of control.

The board is moving slowly and deliberately in carrying out the provisions of this law, no operation of the kind specified having yet been performed. However, a worker is in the field gathering information from the various state institutions as to the individuals most likely to come under the provisions of the law. It is then her purpose to visit the homes of these individuals, as far as may be practicable, and obtain first hand information as to the inheritance or non-inheritance of mental or physical defects.

By the enactment of such laws as these, Wisconsin is attempting to prevent the propagation of her defective classes. The segregation and supervision of these classes of individuals, and the sterilization of those who, though mentally deficient, are self-supporting when at large, will prevent the horrible renewal of defective protoplasm that is contaminating the stream of human life. The normal mind fairly reels with horror at the enormity of this crime against the state and against humanity.

So far I have said nothing practically about criminals, because it seems to me that in our analysis of this class of individuals our minds are enveloped in obscurity and confusion. I must take exception to the practice of placing criminality in the same category with insanity, epilepsy and feeble-mindedness. Crime is a term applied to certain anti-social acts. It is the violation of a civil law. It pertains entirely to civics. I conceive degeneracy to be a violation of a biological law. It results from the union of two germ cells that nature never intended to be united. True, many criminals so-called are degenerates but they are primarily degenerates and secondarily criminals. They are criminals only in consequence of their mental deficiency and are wholly irresponsible for their anti-social acts. They are the insane criminals, the feeble-minded criminals, the epileptic criminals, and they should be permanently segregated and treated as such rather than committed to a penitentiary for a term of a few months or years then turned loose upon the public, neither cured nor reformed, only to commit other crimes and to hand down their degeneracy to future generations. I would designate this class of incompetents by the term demendelicts, indicating those persons who commit offences against the civil law by reason of their mental deficiency. The state of Wisconsin has recently opened the doors of a new institution for the segregation of insane criminals and the criminal insane. Why not an institution for the permanent segregation of feeble-minded and epileptic criminals, whose numbers are far in excess of those of the insane criminals.

Bearing this distinction in mind, criminal anthropology will have to be rewritten. The statistics of criminal anthropometry have always been of doubtful value but, in view of the above differentiation, compiled in American prisons where also so large a proportion of convicts are of foreign birth (30 per cent in Wisconsin), they become absolutely worthless.

The non-degenerate criminals to whom I would limit the term criminals, constitute a group of individuals normally developed both physically and mentally. Oftentimes they are cool, shrewd, calculating, farsighted, but the product of a bad environment. The records I have made in connection with the admission of

prisoners into the Wisconsin penitentiary will show that from the fourteenth to the eighteenth year is the most critical period in a boy's life, Many who afterwards become criminals are at this tender age in consequence of the death of one or both parents and the possible disruption of the home or in consequence of family quarrels, thrust upon the world to depend for a living upon their own resources. It is then that they contract habits that make of them desirable or undesirable citizens. Crime has its inception in vagabondage and incorrigibility. Of the 727 admissions during the years 1912-13, 42 per cent admitted that they used liquor to excess, and 13.7 per cent denied the use of liquor *in toto*. I believe that I am well within the limits of the truth when I say that 60 per cent of our convicts find their way to prison life directly or indirectly through the influence of liquor.

Another large class of criminals are such by preference. Many thieves, burglars and yeggmen ply their nefarious trade as a profession. They say "it is easy money" and, despite the danger of being apprehended and sent to prison, they prefer that means of gaining a livelihood to one of honest toil. Accident and want are also of importance in the genesis of crime.

Nationalism and eugenics are intimately intertwined. National success lies in the hands of an able, patriotic, and enterprising citizenship. Indeed, the one superlative condition upon which a successful civilization is built up, is a successful eugenics. That nation whose customs, whose patriotism, whose religious tenets, insist upon the production of high grade men and women must ultimately prevail over such as give no heed to matters of so fundamental import.

It is obvious then, that national and racial progress must come from a progressive improvement in high grade families. All retrogressive variations, the pathological sort, the insane, the feeble-minded, the epileptic are a dead weight upon humanity and for their support consume the time, the energy and the resources of the progressive element of population. The progress of any race or nation is directly dependent upon the relative proportion of these two elements. The history of the rise and fall of all great civilizations of the past from "Ancient Babylon to Modern Spain" gives striking evidence of this truth.

Finally, eugenics teaches that within the solemn facts of heredity lies the magic key which opens the door to all that is positive and certain in the physical and moral uplift of the race. Having the knowledge, are we not morally responsible for its faithful application? The man who by an inauspicious marriage knowingly pollutes the blood of his family, who consciously degrades the minds and the bodies of his progeny, is dishonest to his trust, robs his children of their just inheritance, and reduces them to a state of physical and mental beggary. Where can you find a cruelty more wanton or more heartless?

What modern sanitation has done towards conquering disease and converting pestholes of contagion into gardens of healthful activities is the marvel of the age. The conservation of human protoplasm, the perpetuation of sound human stock and the repression of the unfit and incompetent is no less desirable, no less imperative for the welfare of the race.

The faithful application of this eugenic dogma means a new order of nobility, a new aristocracy founded on something more stable than wealth and of infinitely more worth than social position. Here, too, is a field where science and religion may clasp hands over the grave of past bickerings and strife and go forward on firm ground towards the realization of a nobler, a braver, a more altruistic humanity.

### DISCUSSION.

Dr. Lewis: The doctor spoke about two divisions of the management of the tendency towards degeneracy; one was through law, the other biologically. The statement that he made in regard to the biological end of the question was so brief that we could not get his viewpoint. If it is improper that two inferior germ cells should unite and the state should interfere to keep from uniting, we should go back of this. This is the question that we should consider; how is it these germ cells should be provided to give us good citizens?

Dr. Abrahamson: I think a very proper subject in the prevention of psychosis is the question of trades and the development of trade schools in this country such as there are abroad. I think there is not a proper selection of trades; the boy is not properly advised in the school. I have seen those who could hardly read and write conceive the idea of studying pharmacy. Think of a psychopathic individual becoming a doctor! If it were possible to guide such individual into a more rudimentary line instead of the line that he chose I think a great deal would have been accomplished. Take the case of Harry Thaw. He would not have developed in the

way he did. I think some means should be provided for the proper advising of the parents as to what trade the boy should enter. The doctor, the family physician, the parents and the teachers ought in some way or other get together. The mother ought to be advised to ask the teacher or to see the doctor and see what the boy is properly fitted for.

Dr. Koppnagle: I do not believe that any eugenic law will ever do away with degeneracy. To quote Dr. Jacobi of New York: "Epilepsy and idiocy are in a great many cases the result of injuries at birth." Why? It is not the place here to discuss. Now, then, we will have epileptics, idiots, due to the action of the physician. Eugenics will not control him. So in this respect eugenics will not stop dementia nor degeneracy. The doctor also divided criminals into so-called involuntary and those by preference. I want to ask the doctor whether he really believes that men are born with preferences for crime or for virtue; whether it is not a fact that crime is the result of environment, to which we physicians pay very little attention? You can burn out a crime in my estimation that is not due to economic conditions and unless you physicians are going to command a remedy that will do away with the extremes of poverty and riches you will have your degenerates and eugenics will not correct it.

Dr. Neu: We make laws to prevent intermarriage of some who are considered unfit for that purpose. The number of individuals who are not permitted to marry and the achievements that are made along that side amounts to very little. We all know as physicians that the sexual life of the human organization is one of its predominating characteristics, and no law is going to prevent that part of our make-up. So far as the question of sterilization is concerned, it is true we have it in some states; the majority who are recommended for sterilization are all inmates of insane institutions. Whether they are idiots or imbeciles, sterilization is going to have very little effect.

Dr. Wickstrom: This is a great problem, a problem that ought to be approached, first, by education. Education should not only be extended to the fit; it seems to me that while we try to prohibit the reproduction of the unfit, we should also aim to encourage the fit to propagate their kind. A very superficial observation will show us that the so-called fit, physically, mentally and socially, fail to produce their kind; otherwise, why should the homes in various parts of the country be childless? Education must precede and follow up legislation and education ought to be aimed, first of all, at the so-called fit to realize that it is the beauty as well as the appropriate thing; otherwise, we will in time have the unfit the predominating class.

Dr. Drake (closing): I am very much gratified at the discussion and criticism. I feel, too, that education is the solution of the whole difficulty and that legislation is only one step toward the education of the public.

## THE RELATION OF THE CEREBELLUM TO THE LABYRINTH

T. L. Long, M. D.
Assistant Superintendent, Cherokee State Hospital,
CHEROKEE, IA.

We occasionally hear of individuals discussing the functions of the cerebellum without attaching any great stress to its relation with certain other organs. While it is generally admitted that the cerebellum is subordinated to the higher centers, yet there are those who do not give sufficient emphasis to the interrelations of cerebellar and cerebral functions, the substitution of the one for the other being frequently overlooked. The automatic acts, the coordinate movements and the efforts toward equilibration were once willed movements on the part of higher mechanisms at the expense of consciousness and the delicate psychic formations. With the cerebellar systems intact there is greater energy provided for psychic activities. In the event of embarrassment to the cerebellum or a break in any of its systems the cerebral and other functions must be invoked to make substitution, consequently psychic functions become correspondingly diminished, resulting quite frequently in mental weakness. The substitution is partly effected by the labyrinth. The intimate relation of the vestibular apparatus to the cerebellar mechanism facilitates attempts at restitution of cerebellar functions.

Sometimes otologists in their writings concerning the labyrinth and its anomalies do not consider, or fail to note, the influence exerted by the cerebellum. In considering the labyrinthine functions great stress or emphasis is placed by ear specialists upon muscular tonus as due to constant excitations coming from the labyrinth and the factor this mechanism offers in the maintenance of equilibrium, no mention being made of the cerebellar control in this connection or as an inhibiting factor to the cerebral and labyrinthine impulsions. The intimate associations of the centers of these two mechanisms and the similarity of their phenomena are worthy of considerable consideration in interpreting certain anomalies in station and motility. Phenomena arising from a vestibular lesion usually disapper more or less in a short time if the cerebellum is intact, but in the event of a lesion of the vestibular apparatus in a cere-

bellar case there is not likely to be any restitution; on the other hand a cerebellar anomaly occurring in a previous vestibular case is likewise subject to the same result—no restoration of function. This suggests some interrelation of the labyrinth and the cerebellum. The anatomical connections of the two systems also verify this view. Perhaps such relationship should be of interest to the otologist and neurologist alike.

The cerebellum is so situated in the cerebrospinal axis as to maintain anatomical and physiological connections with almost all other parts of the nervous system. These close connections and extensive relations of afferent and efferent mechanisms are quite suggestive of the functional demands of this important organ. Perhaps no other part of the nervous mechanism has been more subject to study and experimentation with such diverse views or want of uniformity of opinion as to functions and the anatomical connections. Even today in the light of the various observations made in the direction of experimental, physiological, clinical and pathological research the cerebellar phenomena are far from being thoroughly and generally understood, at least opinions are somewhat at variance regarding certain cerebellar peculiarities in particular. A knowledge of the physiology of the cerebellum is far from being complete. Experimental lesions confined to the cerebellum alone are exceedingly difficult without their influence being extended to contiguous structures by shock or otherwise, owing to intimate and extensive connections. Cerebellar cases with pathological lesions limited to the cerebellum are comparatively rare and, of course, are exceedingly valuable in connection with clinical observations to establish definite knowledge relative to the cerebellum and its physiology.

For many years a number of men have been studying the cerebellum in the attempt to determine its functions and physiological connections with other systems. Much of our knowledge here is obtained from animal experimentation, clinical observations and pathological findings at post mortem. As mentioned above, there is a want of uniformity in results from pathologic lesions on account of complications. The cases of pure cerebellar disease are infrequent. The experimental work has been performed upon various animals, such as birds, dogs, rabbits, fish, reptiles, monkeys and others. Each class of individuals followed different methods and observations were made under varied circumstances. Many induced anesthesia, others did not. In many experiments lesions were too extensive, embarrassing other organs, and the observations were noted during the stage of shock or diaschisis. Others were conducted under more favored conditions. Consequently there is necessarily a lack of uniformity of opinion of even the best observers, especially with reference to the mechanism of certain phenomena. For example, a few physiologists venture the opinion that in the cerebellum repose the centers of organic functions, the vestibular mechanism, special sensation, the muscular sense, the mechanism of coordination, and regulation of movements, as well as the mechanism of equilibration. Some of the recent workers do not accord to the cerebellum such extensive functions, basing their opinions upon their findings from uncomplicated cerebellar lesions as hemorrhage, small tumors, softening and atrophy in particular, in connection with experimentation. Investigations pursued with the view to determine labyrinthine functions and their cerebellar connections have been quite extensively conducted by many prominent physiologists, establishing in the two systems both analogies and differences in phenomena. Lesions of the vestibular apparatus present certain symptoms analogous to those arising from cerebellar anomalies. The connections of the nuclei or centers of these two mechanisms are no less interesting or unique than their physiology and pathological physiology.

Before comparing the functions of the cerebellum and the labyrinth a brief reference to the anatomical mechanism of these two systems may be not only interesting but will facilitate materially in the interpretation of their phenomena, both normal and pathological. The general anatomy of the cerebellum gives rise to little conjecture, but it is in the arrangement of the conducting paths and their central nuclei that the difference of opinion generally lies. Even some prominent otologists consider the cerebellum as the center of labyrinthine impulsions. Neither will pathology nor physiological experimentation verify the conception.

The cerebellum has connections with other nervous mechanisms by means of three cerebellar peduncles, inferior, middle and superior. The inferior is almost wholly afferent, the medium

being entirely afferent and the superior being wholly efferent. The afferent fibers terminate within the cerebellum, where the efferent take their origin, terminating in some remote part, either within the cerebellum itself or in other centers. The inferior cerebellar peduncular fibers originate in the spinal cord, medulla and bulb, those from the medium bundle have origin in the pons. The cerebellum by means of its superior bundle has relations in contralateral with the cord and cerebrum. The efferent fibers have their origin in the nuclei of both the lateral lobes of the cerebellum and the vermis. These centers establish connections with the cerebellar cortex by projection fibers. According to Clark, Horsely and others, the anatomical arrangement establishing relationship between the vestibular nuclei and those in the cerebellum is rather unique. The projection fibers of the vermis are destined for the nucleus of the tegmentum in particular, while those of the lateral lobes are projected to the dentate nuclei. Again fibers from the cord and medulla are projected to the vermis and those from the medium cerebellar peduncle are received by the lateral lobes, making a connection with the cerebral cortex. Thus Clark and Horsely consider these arrangements as two systems, spino-cerebellar and the cerebro-cerebellar.

The fibers of the vestibular nerves terminate not in the cerebellum as some suppose but in three nuclei in the medulla. The excitations or impulsions of the labyrinth are constantly flowing to the triangular auditory nucleus and the nuclei of Bechterew and Deiters from which they are reflected to the muscles, giving them tone. Many eminent physiologists maintain from observing experimental and secondary degenerations that very few or no fibers are destined from the vestibular nuclei to those in the cerebellum, hence the impulsions from the labyrinth can not be stored in the cerebellum. On the other hand, however, there are fibers, the majority being direct, whose origin is in the cerebellar nuclei, that transmit excitations to the nuclei of Deiters-Bechterew. These centers receive excitations from two sources. Consequently both the labyrinth and the cerebellum may excite the vestibular nuclei in the medulla. Accordingly the labyrinth can not send its impulsions to the centers by the intermediation of the cerebellum. By the cerebello-vestibular bundle the vermis is quite intimately associated with the labyrinth, both anatomically and physiologically. Many of the connecting fibers being crossed, each half of the cerebellum bears associative relations with both vestibular roots, the preferential distribution being for the homolateral side. The two systems, the labyrinthine and cerebellar, augment each other in maintaining tonicity. Thus it is evident that a lesion of one gives rise to phenomena quite analogous to those resulting from a disease or an anomaly in the other. The symptoms, however, are not identical, for the excitations are necessarily different. It is the vermis in particular that is in intimate physiological relation with the vestibular apparatus. Of course the nervous flux from the tegmentum of the vermis is not of the same nature as that from the labyrinth. The fibers also differ in their relation to the vestibular nuclei. The phenomena consequently vary.

To consider further the analogies and differences as to the labyrinthine and cerebellar activities it is essential to compare the functional activities of each system. The estimation of the relation of the cerebellum to sensibility is quite diversified, results varying with the author, his method and material. Undoubtedly clinical observations furnish the most reliable information, especially in cases of atrophy. These in connection with the anatomical mechanism referred to above do not warrant the thought that the cerebellum is the seat or storehouse for labyrinthine impressions. Again cerebellar cases do not present any anomalies in compensatory reaction of eyes and head. The perception of movements during rotation, for example, in a centrifugal appliance is intact in these cases. While many researchers lean to the view that the muscular sense has its seat in the cerebellum, yet this has not been successfully demonstrated by proper cases. On the contrary its absence is the rule in pure cerebellar cases. The organic functions are likewise separated from the cerebellum. In fact the anomalies in cerebellar cases consist in disturbances of mobility and muscular tonus.

The cerebellum almost wholly maintains homolateral relations with the musculature of the body. The falls, disturbances in gait and station, the want of association of muscle groups, the translations of rotary movements, the disturbances in equilibrium and the incoordinations

are interpreted as disorders in tonicity and motility rather than anomalies in sensibility. Movements are conserved and their direction preserved. It is generally admitted that the incoordination of movement does not involve direction, orientation to the object being intact. There is a lack of proportion in the elements of motion, the measure of movement being disordered. This is called by some authors dysmetria. Movements are more or less isolated, association as to grouping of the various muscle systems being wanting or at least diminished. Babinski calls this asynergy. This largely explains the loss of station, the inability to perform complicated acts. On account of asynergy the cerebellar case meets with great difficulty in ascending or descending a flight of stairs and in effecting muscular adaptations for the maintenance of attitude and station. There is inability to combine simple movements for definite acts. Another disorder is a tremor which is absent at repose. This phenomenon is rather peculiar inasmuch as it is composed of a series of contractions and recontractions according to many physiologists. In short, the fundamental symptoms of cerebellar disease are disequilibration, dysmetria, hypotonus, asynergy and tremor or discontinuity. In other words, the main phenomena are concerned in the matter of disturbances in motility. The cerebellum increases the duration of contraction and of tonicity. It converts clonism into tonism and effects the measure of movement. The tremor occurs under two conditions; at the execution of voluntary motion and during maintenance of attitude. Tremor is greatest at beginning of movement—done in stages, so to speak. The movements in cerebellar disease are slow for they are willed to oversee movement and resist discontinuity and dysmetria. In slowly developing disease, like atrophy for example, the movement can quite effectively resist disequilibration. Disequilibration depends upon loss of tonic action, hypotonus, dysmetria and asynergy. The cerebellum registers peripheral and central excitations and impulsions, reacting upon them, and makes use of the impulsions from the labyrinth for the purpose of regulating the attitude of head in space. It is the seat of reactions as applied to eqilibration, automatic and voluntary acts.

It is a noticeable fact that the phenomena of cerebellar disorder become exaggerated in the event that the labyrinth is also afflicted. Likewise symptoms of a diseased labyrinth become augmented when complicated by a deranged cerebellar function, suggesting an interrelationship in both normal and abnormal activity.

While in labyrinthine disease the phenomena are comparable to those observed in disorders of the cerebellum, yet the analogy is not so close but that some differences may be observed. Labyrinthine cases present a marked diminution in muscular energy and tonicity. Both hypotonus and loss of energy are much greater than in cerebellar disease. Disturbances in equilibration are quite characteristic and occur early. There are oscillations of the head and rotary motion, especially marked in bilateral lesions, the gait being uncertain and the base of support enlarged. These movements are more or less isolated, not forming an organized systematic group as in disturbance of the cerebellum. If the amplitude of the oscillations of the head is great, the gait is zigzag or wavy. The labyrinth gives the individual his position in space. When there is a break in the vestibular mechanism, one loses perception of attitude and of progression, the oscillations of the head disturbing the equilibrium. Disequilibration is exaggerated by variations in position of the head. In other words, abnormal attitudes of the head result from labyrinthine disturbance, hence disorientation of the head produces disorders of equilibrium. In normal, or even in cerebellar cases, appropriate reactions are made to resist disturbance in balance, but in vestibular cases there is no resistance to propulsion or lateropulsion, no resistance is offered to falls. There is no reaction to an inclined plane or a moving surface. These individuals can not perceive movements of rotation about a longitudinal axis. Vestibular cases and many deaf mutes, when rapidly rotated in a longitudinal axis, are not affected with vertigo. There is no reaction to such movements. Cerebellar cases react appropriately. This sustains the thought that the cerebellum is not the seat of perception for attitudes. In suppression of vestibular function the movements requiring precision are those mostly affected. In a loss of muscle tonus there is correspondingly a diminution in muscular sense, hence movements lose their potentiality and precision. The Romberg symptom is the rule. The ataxia is not the same in vestibular

and cerebellar cases. The former is characterized by disorientation of attitude and the Romberg symptom. In the cerebellar ataxia direction or orientation of movement is preserved. Sensibility is undisturbed. There is a reaction to propulsion. The Romberg phenomenon is absent.

The phenomena of the two systems are illustrated by the following cases. They are selected for having few complications. On account of space only mere abstracts of the main points in the clinical and pathological records are presented.

Case 1. Age 30.

*History:* Little is known regarding this man's relatives except that he has one brother insane. Patient's own history is negative. Has never been very successful in a financial way or in business transactions. In January, 1911, he became somewhat indifferent and depressed, also he was periodically absent-minded. Subsequent to this time had many attacks of depression. Two months prior to admission became quite feeble. He had considerable headache and fever for a short time. While confined to bed had very many depressed attacks and confused periods, also had attacks of vomiting and severe headache. Was admitted to the Cherokee State Hospital August 3, 1911.

*Mental State on Admission:* Patient is somewhat confused. He is depressed, apprehensive, has hallucinations of sight and of hearing. There is some degree of mental weakness. Presents frequent changes in mood. Mental attitude is very unstable. Memory is quite poor with regard to the recent past.

*Neurological Examination:* There is a marked degree of exhaustion. Hypotonus is noted in the extremities, especially in the right. Large muscles are quite feeble, particularly in the lower extremities. Patient is subject to attacks of vomiting. Pupils react well to light and on accommodation. The pupillary reaction so far as the sympathetic system is concerned is absent. The deep reflexes are somewhat exaggerated. There is considerable pain in the occipital region, particularly marked in the right side. Headache is more or less persistent with periods of accession. The gait is unstable. There is some disturbance in equilibrium. Patient reels somewhat to the right. During attacks of very severe headache the head turns to the right and the eyes somewhat to the left. Is very awkward in his movements. Has a tremor of the hands when attempting to perform definite acts. There is also a tremor of the lips while speaking. The tremor is absent during repose. This tremor is also quite marked while the patient attempts to maintain his attitude. Presents no disturbance in sensation. Organic functions are intact. There is a marked neuroretinitis with some impairment in vision.

October 7. Continues to have frequent attacks of vomiting of a projectile nature. Headache is less severe.

November 1. Has made some recent improvement. This man has gained a little in strength. There is still a disturbance in reflexes. Headache is more or less persistent.

December 1. Headache is unusually severe, particularly in the occipital region. Vomiting is becoming more frequent. Is subject to vertigo. Incoordination is quite marked. Patient presents a reeling gait. Reels usually to the right, occasionally to the left. Disturbance in equilibrium is becoming very marked, especially in the lower extremities. Tremor is noted when the individual attempts to maintain his attitude or to perform definite acts. In the act of walking the body is curved with its concavity towards the right. The head is frequently turned to the right and the eyes to the left. While in reclining position many movements are natural.

January 1, 1912. Continues to have frequent attacks of vomiting. Headache is becoming more severe and his gait more unstable. Has many retinal hemorrhages. Recently has been having a few convulsions.

February 1. Eyesight is greatly impaired. Headache is still persistent. This patient frequently has oscillation of the head. Has lost his perception as to the attitude of his head in space. There is nystagmus. Hypotonus is rapidly progressing, especially on the left. There is marked mental weakness which is rapidly progressing.

March 1. Dementia is becoming very marked. Continues to have convulsions of a tonic character. Reflexes are still exaggerated. There is apparently some disturbance in the muscular sense. Frequently loses the perception of the movements of rotation. Association of muscle groups is considerably impaired; in other words, there is marked disturbance in muscular synergy.

April 1. Has recently lost considerably in strength. Romberg symptom is present. Eyesight is becoming more impaired. Continues to have oscillation of the head and nystagmus. Offers very little resistance to propulsion or lateropulsion. There is considerable defect in hearing, particularly in the right. Has lost to a large extent his position in space. When attempting to walk he immediately falls into a heap, offering no resistance or reaction to the loss of equilibrium. Headache is becoming more severe and convulsions rather more frequent. Following the convulsions has areas of hyperesthesia of the back and chest.

April 16. Is extremely confused today and somewhat stuporous.

April 17. Died suddenly today during an attack of dyspnea.

*Post Mortem:* There is no evidence of meningitis. The cerebrospinal fluid is increased in amount. A large tumor mass a little over three centimeters in diameter is noted in the right cerebellar hemisphere. This tumor is of the nature of a glioma with cystic degeneration. The tumor formation invades somewhat the vermis. There is some evidence of compres-

sion made on the structures of the brain stem, especially the pons and the eighth nerve.

Case 2. Age 67.

*History:* No information is obtained regarding this man's past. He was admitted to the Cherokee State Hospital December 4. 1913, after being picked up by the officers in one of the neighboring counties. He was a perfect stranger to the parties who put him under arrest. When he entered the hospital he was quite confused and demented. His statements regarding his past life were absolutely unreliable.

*Mental State on Admission:* On admission is somewhat childish. There is some confusion. His memory is greatly impaired. Has delusions of an exalted character. Mental weakness is quite marked. Has absolutely no insight with reference to his dementia. Patient is somewhat incoherent in thought. He repeats syllables and words. There is some verbigeration.

*Neurological Examination:* There is marked diminution of muscular energy and tonus. There is decided ataxia of both upper and lower extremities. Incoordination is more marked in the upper extremities than in the lower. This is particularly marked in the left side. Has marked oscillations of the head. Intention tremor is very marked. This tremor is absent at repose. Tremor becomes pronounced when patient attempts to establish his equilibrium. His movements are very slow. When he performs movements rather rapidly tremor becomes extremely marked. Deep reflexes are exaggerated. There is a slight ankle clonus on the left side. Pupils are not equal. The right pupil is a little smaller than the left. Pupillary reflex is somewhat sluggish. Vision is greatly impaired. There is marked neuroretinitis. Patient complains of headache quite frequently. Cutaneous sensibility is unimpaired. Patient is very awkward in his movements. Fatigue is induced very readily. Has a speech defect. Speech is scanning. He has difficulty in pronouncing test words. The lips become tremulous when he attempts to articulate. There is a slight paretic condition of the muscles on the right side of the face.

January 1, 1914. Patient is more weak-minded than he was a month ago. Is inclined to be somewhat careless in his habits. Lately has gained in weight, yet there has been no gain in strength. Continues to have disturbance in gait and in station.

February 1. At this time there is marked incoordination. Oscillations of the head are more marked. Has lost his perception with reference to space. There is some defect in the muscular sense. The gait is zigzag. Patient occasionally reels to the right and to left. There is a nystagmus. Speech defect is becoming more pronounced.

February 15. Confined to bed today on account of marked weakness of the extremities. Hypotonus is becoming quite pronounced. Makes very little attempt to resist falls. Is now subject to convulsive attacks which are of a tonic nature.

February 25. Had several convulsions today. They were all tonic in character. The head turns invariably to the right, the eyes to the left. Hearing in the right ear is completely lost. The paretic condition of the right facial muscles has recently become more marked. There has been a persistent occipital headache for the past two weeks. Vision has failed very markedly lately. Individual is in a somewhat stuporous condition.

February 27. Has considerable elevation of temperature. Is not able to swallow today. Died Feb. 28.

*Post Mortem:* There is some atrophy of the cerebral cortex. The lateral ventricles are a little enlarged. There is an increase of cerebrospinal fluid. A tumor mass about two centimeters in diameter is observed in the right cerebellar hemisphere involving the eighth nerve and pressing upon the seventh. The eighth nerve is completely involved in the tumor formation. This tumor is of the nature of a fibroma. There is an area of right cerebellar hemorrhage which is recent. There are hemorrhagic areas of destruction in the left temporal and frontal regions extending into the cortex. These destructive areas are not very recent. Arteriosclerosis is noted in both the cerebellum and the cerebrum. The sclerosis is particularly marked in the basilar artery. Atrophy is particularly marked in the frontal lobes.

Case 3. Age 28.

*History:* Admitted to the Cherokee State Hospital May 19, 1913. Family history is negative with the exception of father and one brother intemperate and one brother syphilitic. Patient's history is negative. Was considered a man of ordinary mentality until about a year ago. At that time he became somewhat restless, indifferent and was incapable of following any useful occupation. In January, 1913, had periodic headaches with periods of confusion. In February of the same year had considerable difficulty in walking, in speech and in station. There was some incoordination of the muscles. Became more confused than usual at that time.

*Mental State on Admission:* On admission is found to be somewhat demented and a little confused. Patient, however, is fairly well oriented. There is some memory defect for the recent past. Has difficulty in entering into conversation owing to the defect in the power of attention and muscular incoordination. His speech is rather unusual, inasmuch as it is of an explosive character. Has a tendency to repeat words and sentences. Repetition is particularly concerned with the last spoken word. He frequently repeats the question, or which is more common, the latter part of the question before attempting to give the answer. If the question is a long sentence he reacts before the question is completed. This reaction is rather spontaneous. This individual occasionally reacts to sounds without any idea as to the nature of the question asked. There is some defect in the power of comprehension, especially with reference to abstract ideas. Patient is not in any way depressed. He realizes his physical infirmity, yet this condition causes him no concern. He is very hope-

ful and of an optimistic turn of mind. Makes frequent attempts to reestablish his equilibrium.

*Neurological Examination:* There is very marked incoordination of the muscles of the extremities, lips and other muscles of phonation. There is marked defect in equilibrium. Patient has considerable difficulty in maintaining his station. Has a marked tremor, all of the muscles being overactive, especially the movements concerned in speech and in the maintenance of equilibrium. Movements are very slow. When he attempts to perform definite acts rapidly there is an exceedingly marked incoordination, but if these movements are performed slowly incoordination is considerably less. Tremor is particularly characterized by stages. Movements are performed in a series of contractions and recontractions. These are to a large extent overcome when the individual attempts to perform movements with deliberation. There is marked speech defect. The gait is zigzag or wavy. Patient reels from right to left. The reeling is mostly to the left. Tremor is absent during repose. While the patient is lying in bed there is no tremor. In the lying position many movements can be performed quite readily without manifesting any degree of incoordination, but the moment he takes the upright position the incoordination becomes extreme. Patient has not lost his conception of space. Dysmetria, or the loss of measure of movement, is particularly striking. The association of muscle groups is greatly impaired; in other words, the defect of synergy is quite pronounced. This man can quite readily maintain his station if he obtains some support or if he holds to a fixed object. There is very little hypotonus. Muscular energy is quite good. Patient is well nourished. The deep reflexes are somewhat exaggerated, especially on the left side of the body. There is some defect in eyesight. Retinal hemorrhages are noted in each eye. There is a neuroretinitis. This individual has periodic attacks of headache. There is nothing definite in regard to the location. Frequently the pain is located in the occipital region, occasionally in the frontal region and elsewhere. Has no disturbance with cutaneous sensibility or with the muscular sense. There is a slight nystagmus.

June 1. This patient has been confined to bed since admission. There has been some improvement in his mental state since coming to the hospital. Incoordination is less marked. There is yet considerable impairment in equilibration.

July 15. Has made very marked improvement since June 1. This patient has been permitted to be dressed during the past three days. He walks about the ward without being supported. Occasionally falls to one or the other side. Gait is still zigzag. There has been recently very marked mental improvement. Incoordination in the upper extremities is less marked than noted the month previous.

September 1. Is not confined to bed during the day time. He walks about the ward and goes to the dining room. Feeds himself. There is still marked incoordination with disturbance in equilibrium. When his movements are performed slowly many acts can be quite well performed. While the patient is standing unsupported or walking without any assistance, if his attention is then distracted by somebody calling his name, for example, he immediately falls to the floor. This condition is invariably induced when his attention is distracted. This patient gives a great deal of his attention to attempts in maintaining his station and reestablishing his equilibrium.

November 1. During the past month has failed. Has lost some in weight and in energy. Incoordination has become more marked of late. Dementia has progressed during the past two months.

January 1, 1914. Mental enfeeblement continues to progress. This patient when attempting to walk about gives his entire attention to the maintenance of station. He also gives a great deal of his attention in attempts to resist incoordination of ordinary movements. He is again confined to bed owing to the fact that he is incapable of walking without assistance. Eyesight is failing rapidly. There are many retinal hemorrhages. Optic atrophy is noted.

April 6. Today had frequent attacks of restlessness and convulsions of a tonic nature. Has hallucinations of sight and of hearing. At this time patient loses his perception with reference to his position in space. Nystagmus is very marked. There is some elevation of temperature. Oscillations of the head are quite pronounced. Patient is very confused.

April 15. There has been some improvement in this man's condition within the past week. He is less confused. Has better control of his movements. Oscillations of the head are less pronounced. There is very little disturbance in sensation or in organic functions.

June 1. This patient has made very marked improvement within the past month. He still has incoordination of movements and there is considerable disturbance in equilibrium. Can perform many movements fairly well if they are performed slowly.

July 1. This individual is quiet, oriented and fairly clear mentally, but there is considerable mental weakness. While in a condition of repose there is no tremor. Tremor becomes quite marked when he rapidly performs certain acts and when he attempts to walk. The Romberg symptom has never been present.

Cases 1 and 2 are particularly interesting as presenting symptoms of both cerebellar and vestibular disturbances. Case 1 did not at the time of first examination offer any evidence of labyrinthine disorder. Later in the course not only were the cerebellar phenomena augmented, but symptoms arose indicating embarrassment to the vestibular nerve from compression. Case 2 from the time of first observation presented evidences of envolvment of both the cerebellum and eighth nerve by the tumor formation.

Furthermore there were hemorrhagic areas in the left temporal and frontal regions. These findings are very significant. This case was unable to effect restitution or to reestablish equilibration even to a slight degree, owing to a deranged function of the vestibular, cerebellar and cerebral systems, the main organ to effect substitution not being intact. It is a recognized observation by physiologists that the cerebellar function can not be restored by substitution in the event of disorders in the labyrinth and the contralateral cerebral hemisphere.

In Case 3 may be illustrated typical cerebellar anomalies, vestibular disorder being suspected only a few times, perhaps from compression. The progress of the disease was rapid for a while prior to admission to the hospital. For several months thereafter there was apparently an arrest in the diseased process with a marked restoration of function undoubtedly from substitution. This was at the expense of psychic formations, a great deal of attention being required to combat incoordinate movements. Thus the cerebellum may be considered as a regulator of movement and an inhibiting mechanism for cerebral phenomena, clonism being transformed into tonism. The cerebellum likewise inhibits or regulates the nervous flux from the labyrinth. Both cerebellum and the vestibular apparatus are concerned in equilibration.

---

## SPURIOUS AND GENUINE TREATMENT OF PSYCHOSES, ILLUSTRATED BY CASES.

TOM A. WILLIAMS, M.B., C. M. (Edinburgh).
WASHINGTON, D. C.

President Washington Society of Nervous and Mental Disease; Foreign Corresponding Member, Society of Neurology of Paris, etc.; Neurologist to Epiphany Dispensary.

Medical men, particularly as regards mental medicine, are at a disadvantage in meeting the wiles of charlatanry; for they cannot make an appeal so sensational as that of the mystery mongers. The hold which surgery has taken on the public mind is partly perhaps because of the very sensationalism of its appeal; and such recent medical agents as salvarsan and radium have gained much renown from the exaggerated emphasis given them by journalism.

At the time when psychotherapy was equivalent to hypnotism, similar exaggerated claims were made regarding it. Still more recently the meritriciously presented observations and reflections about multiple personality had much vogue; and even now the schematised phantasies of some psychoanalysts have been exploited sensationally before the public.

But the appeal of all these is to the love of the mysterious, an aid denied to the psychotherapy now presented. This latter has no attraction for lovers of the marvelous, for it is merely an enlightened good sense without any mystery; indeed, in its apparent simplicity, it illustrates the attitude of the questioner who, upon being told by the painter of a picture he admired, "One simply mixes the paints and puts them on with a brush," declared contemptuously, "Oh, is that all?" The illustration is an accurate one, for to play on the mind, which may seem so easy to the crude or unobservant because of the concealment of its art, requires much greater skill than the admittedly difficult art of playing the flute, as Shakespeare so penetratingly made Hamlet remark.

That medical men are so obtuse regarding the need for technique in treating patients with psychological disorders, permits them to attempt the treatment of these difficult cases, a thing they would never try without special training where for example, the eye, major surgery or orthopaedics was concerned. The result is that the many patients not benefitted cast discredit upon medicine, and become a derelict herd upon which fatten the exponents of systems of incorrect thought, weird manipulations and semi-religious fanaticisms. It is high time that it be recognized that the graver "neuroses" are just as much in need of special skill as are obscure medical cases or those requiring major surgery. In the same way, just as it is recognized that a man without special skill not only obstructs but is a dangerous assistant in the operating room or laboratory, so it must be recognized that the endeavors of the family physician, however well-meaning or intelligent, unless he is specially trained, may seriously incommode the progress of his patient; for he can hardly help interfering with the special technique of the psychotherapist.

*Two common errors.* Unsound psychotherapy by medical men commonly shows itself

either in attempts at suggestion, which are often merely an evasive jollying, or in the relegating of a patient to a sanitarium for nervous disorders. These practices are most reprehensible; for in every few of such sanitariums are there men with sufficient neurological training or insight concerning psychoneuroses; and to attempt any therapeusis without some etiological diagnosis is the haphazard with which we so often reproach charlatans.

What should we think of the physician who gave morphin for a pain in the abdomen, regardless of the possibility of acute inflammation requiring surgery? Yet there is no difference in principle between such reprehensible procedure and the common negligence which attempts to remove by hypnotic or waking suggestion symptoms concerning the genesis of which the operator is completely in ignorance.

It is time that medical men realize that only a very thorough neurological training can in many instances furnish the means even for a diagnosis between organic and functional disease. (See author's "Diagnoses of functional from organic Motor Disabilities," Archives of Diagnoses, N. Y., 1908-9; and "The sensibility in Disease." Amer. Jour. Med. Sc. 1910.) And it is hardly known at all that functional nervous disease should never be diagnosed by exclusion, but by its genetic factors, or at least by a detection of its mechanism. (This is a term used in psychopathology to denote the train of ideas and emotions which through a series of associations have modified the psychic re-activity of the patient.) To do this requires very special training.

*The sanitarium fetisch.* A case illustrating the folly of sending a patient to an institution, as well as gross failure to detect the mechanism of a profound melancholic reaction, was that of a well educated man in the thirties whom I saw in England last August in St. Luke's Hospital for the Insane, where he was regarded as a dement. The patient had been certified as a hopeless lunatic, and had been incarcerated for some years, so that he was slowly perishing of inanition. He had within four years consulted several distinguished neurologists; and although none made a diagnosis, all had regarded the case as hopeless. Although the man persistently refused food and could not be kept clean and his dejection was so profound that it required immeasurable finesse to get "en rapport" with him, twenty minutes served to find out that his condition was purely psychogenetic. It was merely the result of intense depression caused through his failure to accomplish a most ambitious task in literary psychology, for which he was ill-fitted in training and intellect. An exaggerated slough of despond from discouragement would describe the mechanism in popular language. Thanks to the persistence of a faithful sister who had consulted me, proper measures were instituted in spite of the scepticism of others, and the New Year brought me word that the patient had shaken off his melancholia and is well.

Such reproach to medicine is I fear not rare; and I am sorry to say that few sanitariums afford much chance that the mechanism of a psychoneurosis would be detected and the patient placed on the sure road to recovery. Another pregnant illustration will be found towards the end of this article.

*As to suggestion.* The man on the street, and as regards morbid psychology few medical men are yet in a better position, if he ever thinks about it at all, probably believes that suggestion is either "claptrap and twaddle" or something marvelous and mystical, or like the old electric fluid of our fathers, almost like something you could put in a bottle and take before going to bed. Even physicians have been heard to speak of "giving a little suggestion." (Actually, suggestion is merely the process of getting an idea accepted by the mind of the subject by slipping it, as it were, past the guard of his attention or criticism.) This may be done in various ways. For instance, it may be done indirectly when the subject's attention is lulled, as by a political harangue or theological exordium. It is not a desirable method of therapy generally speaking.

*Ecclesiastical suggestion.* The faith-healing cults really act by suggesting the disappearance of inconveniences. Each of them of course may remove symptoms, but only in cases where there is a false idea at the root of the trouble, because each, if successful, removes the false idea.

The very distinct advantage, however, which one of these cults has over many other methods of suggestion, is that its teachings are positive, though they appear negative. It not only removes a false idea but it fills up the void again with a positive belief that all is well. This is ob-

viously more efficacious than physicians' methods which not only concentrate attention upon the physical aspect of the disorder but merely aim at the removal without substitution of the false idea. Suggestive power of healing cults is of course, further tremendously strengthened by the religious aspect. The fault of these cults' procedures in their application to nervous disorders, is that they substitute for the original distorted thinking or false idea, an equally false, unreasoning and treacherous optimism.

*Suicide from the effects of a "Faith" cure.* For example, a prominent business man in one of the larger southern cities was attacked recently by the condition which precedes and leads to arteriosclerosis. He was ordered certain exercises and a dietary, but preferred to adopt Christian Science. He believed himself to be cured, being possessed by the idea that "God is All; God is Good; All is Good"; hence his natural business caution was replaced by an unreasoning and happy-go-lucky optimism. Result rash speculation, financial ruin and suicide in six months. Of course, there are many suicides of persons who have not embraced faith healing cults, and one might argue that this man might have committed suicide in any case. But I wish to point out that suicides can now be prevented by modern psychopathological methods[1] and that the inefficacy of the procedure employed by this man is clearly shown by the considerations of cases in this article. His blind faith was tantamount to hiding his head from calamity, so that when he could no longer hide from it, it overwhelmed him. The rational procedure would have fitted his psyche to prevent or avoid the catastrophe which he had seen months before.[2]

*Need of neurological training in psychotherapy.* Contrast the following case as illustrating the imperative necessity of medical training in caring for nervous disturbances apparently entirely "mental."

An engineer aged 38 (referred by Dr. Atkinson) a powerful, energetic man, formerly accustomed to work, began to be unable to concentrate upon the office work to which he had confined himself for over three months. Previous to this he had been much less active, and latterly he had been very much worried by an official inquiry into a contract for which he had been mainly responsible. For no cause known to him he feels a dread in the mornings; and an indecision in business matters is now realized to have been present several months. There was no syphilis nor any other organic disease.

He had been improved by three weeks in the woods during which he was very somnolent, but relapsed at once upon return, and could hardly stand his morning suffering. There was no insomnia.

*Physical examination.* The reflexes were rather active, but there was no other objective change in the lower neurones; there was no *amensia;* the sexual hygiene was normal. He was much depressed and longed to go away from it all for a year, which he could well afford to do.

*Treatment.* He was sent for three weeks into the mountains. This time he fully recovered *on account of the light diet which he took.* Breakfast and supper were fruit and milk, and his midday dinner was vegetables and six ounces of meat; after a few days cereals were added morning and night. He has remained well for three years, having been taught proper hygiene.

*The futility of empirical suggestion.* Suggestion of any kind is a very crude measure at best and does nothing to build up self-mastery. It weakens rather than strengthens the resistance to incoming ideas or habits in the future. It makes one dependent upon the behest of another. It is a morphin of the soul. Not only so, but it is inadequate to remove symptoms when compared with the superior analytic and synthetic methods we now possess. Here is a case which shows inadequacy of crude "suggestion."

*Cure of a tic where suggestion had failed.* A boy from North Carolina was referred to me by Dr. T. C. Martin, suffering from a "barking and bowing" tic. When he sat down he would utter a series of barks and at the same time the trunk would double up. The attacks had begun suddenly three months before in the middle of the night after he had eaten sandwiches sent by his parents from Washington and had been thinking despondently about how nice it would be to be back there. He had also been thinking a good deal about his "inside," for which he had been much doctored. This patient had been treated by electricity, which he was assured and no doubt believed, would cure his trouble; then by direct suggestion, and finally by the powerful suggestion of the strongest medicine known, a drug obtained from some remote country and guaranteed to cure. All these methods proved utter failures.

*Treatment.* Because there was not time, there was no attempt to delve completely into the mental life of the patient, but it was deemed sufficient to rectify the physical manifestation of his mental disorder, whatever its precise nature might have been. And note well this was done by psychophysiological means. There was no attempt (as had been made by the pre-

1. See author "On the Prevention of Suicide," American Journal Insanity, October, 1914.
2. See author Monthly Cyclopædia, 1909.

vious suggestioners) to bludgeon in, by suggestion, a sort of panacea, a cure-all, like the belief of the Christian Scientists, and thus reverse the whole trend of his mentality without the least attempt to discover either what the matter was or how it arose. This patient was placed in a reclining chair. The muscles of the abdomen were pointed out and their activities explained to him, and he was taught how to voluntarily move them and by doing so counteract the spasms which were making his life unbearable. Two days' drill sufficed and the patient was and still remains cured.

*Efficacious medical healing of neuroses—psychotherapy.* Opposed to the irrational and haphazard methods we have just examined is the real psychotherapy. It is dependent neither upon "suggestion" (though it rarely avails itself of this method as a short cut, to save time, in selected cases), nor upon morbid anatomy (though the diagnostic knowledge of this branch of medicine is a requisite to its efficient practice). Neither does it rely upon the domination of the weak and ailing by a stronger will. And the mere development of confidence in the doctor is not its secret. If any proof of this last fact were needed, I could cite very many cases where both doctor and patient have wondered at the failure in spite of complete faith in the family doctor. The North Carolina boy case above cited was just such an instance.

The real psychotherapy is rather a method of scientific psychoanalysis and synthesis, a dissection of the mental tendencies until the real root of the fault is detected, followed by a putting of them together pointing in a new direction, so to speak, and keeping them pointed in this healthy direction by frequent adjustment of vacillating tendencies, and seeing that the patient's own will is used in the effort. It takes time and skill, as well as knowledge of psychopathology. Its rationale is illustrated by the cases which follow: The first of these shows the effect of a correct analysis.

*Cure of chronic fear.* A professional man, 28 years old, gradually withdrew himself from society and friends, later denying himself to all but one. He abandoned work and began to neglect food. At night he would pace the floor for hours. He looked haunted and ashamed. He twice took steps towards suicide. There is no need to enlarge upon a picture so familiar. Suffice it to say he is cured.

He was most distrustful of the possibility of cure as he had six months previously visited specialists who had failed to benefit him. As he described it, their procedure seemed to have been somewhat crude attempts at hypnosis with suggestive assertions denying his symptoms and their cause, which he had declared to be a state of fear.

It was mainly in the presence of other people that his fear came over him; and he was much ashamed all the time because of this fear. It was quite different from the timidity of adolescence. As a small boy he was noted for his bravery, and would fight against the boys of the neighborhood. The cause of his fear was unknown to him; and he believed it was hereditary, as one of his brothers was worse than himself and had become a wanderer whose whereabouts would be unknown for months at a time. The patient had been fighting against this fear at least since his college days; he had tried playing football to make him courageous, but without effect; and so when he graduated, he plunged into a camp of rough lumber men and took his part as a laborer with the rest. Six months of this gave him still greater admiration for courage, but in no wise improved his own. He then returned to civilization and plunged into studies and office work, hoping to attenuate the fear which gripped him; but instead of this he gradually lost mastery, and after six years of struggle fell into the state in which he came to me.

*Genesis.* After a physical examination which disclosed no important features except great loss of weight and a high degree of erythism, psychological exploration was begun by my stating to him that either he was, as he believed, a physical degenerate or there was some psychological cause for his fear; in which latter case the discovery of that cause might lead to the finding of a means for its removal and the ending of his fears. He was then told to search his memory for fear-bearing experiences in early life, but could think of none. Then period by period running back from his college days had attention turned upon it, until the patient recollected to have been morbidly fearful at each time, until finally he declared that he had always been afraid and must be therefore a physical degenerate. He was then asked what incidents of his early childhood had particularly frightened him, and at first recollected nothing. Wild animals, darkness, fire and people were each in turn presented as possible factors. But it was not until the remembrance of a near relative was recalled that the key of the situation was found. It seemed that this individual's ideal of up-bringing was the hardening process, and that the theory he held was that every boy's moral welfare required the knowledge of fear. These two objects were combined in such a procedure as throwing the lads into the water while they were unable to swim, to fish them out only when they were going down almost breathless. In winter, a favorite method was to throw the boys while asleep in the morning into a bank of snow and snowball them home to the door. Another procedure was to chase the children with a stockwhip from the front door to a tree in the distance. The result of all this was not hardening, but a breeding of chronic fear in these two lads. The patient's recollection of these performances

reached back to the age of 4. But he had completely put out of his mind these incidents and indeed, failed to take into consideration his cowardice as a young boy, believing it to have originated in the high school.

*Treatment.* When the source of the fear was discovered the patient declared that he did not see how this knowledge would benefit him. It was then explained to him that his fear was merely a psychical habit and not an instinctive reaction. He was told that habits can be reformed if intelligent effort is employed, but that he was in no condition to begin reformation of habit until he had slept and eaten regularly for some days. When he objected that he had long since given up narcotics, as he was worse than before taking them, he was told that I never found it necessary to give narcotics, that I should induce sleep without them and that after this he would be less unwilling to eat.

Accordingly, treatment was begun by my visiting him in bed and hypnotising him into sleep. He slept 18 hours, then carried out the dinner program we had previously arranged. Hypnosis was performed three times in all, but not on consecutive nights. In the meantime, re-education was begun.

To make a long story short, this consisted of a reconstruction of the fear situation of his infancy, and the pointing out of the non-necessity of the fear sequence which had occurred and the insistence of the possibility of reconstruction of his reactions towards himself and the world. Numerous instances of the dependence of emotion upon ideas ("Role of affectivity and Intellect in Traumatic Hysteria," Williams, in Journal of Abnormal Psychology, June, 1910), were given; and he was instructed concerning reconditioning the reflexes as investigated by Pawlow and Crile; and he was shown the physiological perniciousness of the fear impulse.

He struggled with the situation bravely; but I left him alone after what proved too short a period, namely four days, and he lost courage and began to relapse until a friend drew my attention to the situation after a week. We then resumed relations, as he felt the need of help. After four more days of re-education, the tide turned and he obtained control of his fear.

He celebrated the occasion by an impressionist account of his situation from which I extract what follows:

"I've won! I've licked him! I've driven away the beast that was driving me mad. As soon as I knew just what he was, and why he came, I poked him with my finger, and he busted. He's not gone entirely, he's crouched growling nearby, waiting to jump on me again, and occasionally he gives me a twinge, such as some men get when passing a looking glass. I laugh at it. I'm on my back no longer, I'm fighting and my battle's all but won. I wrote my last letter on Friday. Yesterday I had fun. I got up singing in the morning, dressed carefully and went down town. I ate my breakfast slowly, but made the waiter scurry. A week ago I slunk into a restaurant, because I was fearfully hungry, unshaven, unshorn, and unkempt, and the waiters all laughed at me, and I hurriedly gobbled my food and crept trembling out again. I went back there yesterday and bullied the whole crowd. One of them came up grinning, and I looked him in the eye, and the grin changed to a smirk, I kept him standing waiting, while I read the menu through and I said, "Bring me this and this and that—and Waitah, hurry! and don't you dare to not do so always." Ten days ago I sneaked up to the Sherman statue by moonlight and looked at the statue of a soldier, longingly and wondered who he could be. Yesterday I walked up to him laughing, and wished I could shake his hands."

*Reaction.* It is over two years now since the above account was written and the patient is now successfully practicing his profession and is still happy, not to say buoyant. At first indeed, he was so expansive that I suspected a periodic psychosis in which my intervention was a mere coincidence; but that that is not the case seems to be shown by the gradual subsidence of the extravagant behavior which the patient at first showed. Besides, another instance of still greater disturbance of this kind recently came to my attention wherein no such doubt could arise. It was that of a woman, aged 28 years, whose vision was restored by removal of congenital cataract. Dr. Reid Russell of Ashville, the operator, informed me that the patient's reaction was almost maniacal in her joy at her new sensations and at her unaccustomedness to the adaptations they required. So I interpret this young man's extravagance of behavior to his incapacity at first to adjust himself to the new manner of looking upon the people who surrounded him, his former ever-present dread having been displaced by a disregard almost contemptuous, with a consequent effervesence of the ego disconcerting to those who previously knew him.

*Psychopathological interpretation.* This case is an instance of:

1. An anxiety state induced by mechanism other than that postulated as essential by some psychoanalysts.

2. The induction of an emotional state directly from an idea.

3. The forgetting of the initial circumstances which induced the concept which governed the life so detrimentally.

4. The revelation of the initial circumstances by an analysis so elementary as to be no more than a particularly intelligent anamesis,

in that it neutralized skepticisms and antagonisms and proceeded with patience.

5. The failure of "catharsis" per se to alleviate the condition. (A word tantamount to confession with full realization.)

6. The need of re-education, that is psychological reconditioning for the remaking of mechanism.

(The hypnosis used was merely incidental to secure sleep upon certain occasions.)

A second case is that of the North Carolina young man already described, where the inefficacy of suggestion as compared with re-educative drill is apparent.

*Other cases.* I have already related ten cases illustrating the rational therapy of hysteria. (Wash. Med. Annals, Jan., 1912) (Post graduate, Aug., 1912.) Some of these forcibly exemplify the failure of empirical suggestions. There should be recalled Dr. Hardin's young woman from Warrenton, where the most emphatic suggestions by a previous physician failed to influence an intolerable hyperesthesia round the knees and arms, cured in one week by exercise based upon a rational understanding of the psychophysiological mechanism of the muscular contractions which caused the pains. Some will recall Dr. Stone's case of iliopsoas spasm, which the removal of a diseased appendix failed to cure, but which was removed by two weeks of psycho-motor discipline.

It should not be necessary to again cite the striking success of rational psychotherapy in children; for the examples related last year (Wash. Med. Annals, 1913, Amer. Jour. Med. Sc. Jan., and Journal of Abnormal Psychology), where a single interview often sufficed, should be fresh in your minds. Nor should it be necessary to remind you that the psychotherapy of our day need not approach with diffidence the hitherto intractable occupational and traumatic "Neuroses"; for principles were set forth so recently as the International Congress of Hygiene, 1912, and the International Congress of Medicine, 1913. (See Transactions; also Monthly Cyclopædia, 1912.)

But I wish to supplement these cases by others exemplifying the manner of treating hysteria in an older child and of the more obstinate case of an older woman, and with two cases showing the pernicicousness of unthinkingly referring to a sanitarium a patient in so grave a contingency as the persistent attempt to commit suicide.

*Hysterical night terror.* A girl aged 16 years was referred by Dr. Litchfield of Pittsburg on account of great nervousness for years. She had never been regularly to school until the fall, when she had been sent to boarding school after convalescing from appendectomy, but had become so nervous that she had to return in two days. Inquiry showed that she would frequently wake in the night very much afraid unless she were soothed by someone sleeping with her; so that she could never sleep alone. Further inquiries showed that a servant had told terrifying stories to her sister as a child; the horrors this brought ran through a family of three children, but they passed away from them all except this patient. She had been much spoiled since, owing to a supposed weak heart, and had always been considered a weakly child. Her father and an aunt had been timorous as children; the later for nine years had not dared to be alone for a moment.

Examination showed feeble reflexes becoming active on re-inforcement; muscle tone fair; weight 108 lbs.; pulse 104 during examination, although patient said she was not excited. Cardiac sounds closed; chest expansion free; appetite is said to be good, with certain dislikes; walking tires her, but dancing and tennis do not. For heterophoria she was prescribed glasses, but does not use them.

Psychic functions are at first sight unimpaired except that she just wants someone with her when in bed. Her fears are either of fires or burglars, and they only occur when in bed or asleep. She whines when dreaming and wakes frightened but never screams, but clutches her companion desperately for reassurance. She is sure she wants to get rid of this trouble; she cannot remember the first occasion of fear. Noises such as creaking of floors, make her think there is someone in the house, although she knows positively there is not but cannot make herself believe it. She is ashamed of the emotion and will go to bed alone, although terrified, if there is someone else upstairs, but if not will wait until her mother comes.

She imagines a burglar might hurt her. Analysis shows that there is no definite fear of what he might do to her, but that the fear is of the unknown, and although it might help her to know it, it might be too terrible. Her agitation upon speaking of this she attributes to her shame of being "babyish." I explain there is no shame in what one cannot help, but that she cannot until an understanding is gained through analysing the situation. She is not less frightened when away from home, but any person in the room will tranquilise her fear upon wakening if she can touch them. The night fear is quite different from any fears in the daytime.

After the analysis she was asked to go home and write out her impressions of the situation, which she did as follows:

"The earliest instance I can remember was about eight years ago, when my nurse sat in the next room while I went to sleep. For five or six years afterward someone was with me when I was going to sleep. If I woke up in the middle of the night—which I usually did—I would be terrified and go into mother's bed, with her, in the next room. It is only within the last few months that she has been sleeping in the same room with me the entire night. Before that I always went to bed in the room next her's, but very rarely remained there all night. I can not ever remember having the nurse put me to bed and then leaving me to go to sleep by myself. She was always in the next room. It made very little difference whether my mother, nurse or sister were with me; I preferred mother, but would have anyone rather than be alone. I was always worse in our city home than in our country home because I thought there would more likely be burglars in the city than way off in the country. I would go to sleep more quickly in the country but would always have someone with me.

"As long as I can remember I have dreaded night. I always lay awake a long time after going to bed fighting with my terror of burglars. Every sound made me think of them; and I used to hold my ears shut so that I could not hear the floors creak, and try to go to sleep that way. So when I thought of those long sleepless hours I would wish that there was no such thing as night."

Her dread is mingled with self-contempt at her "silly babyishness."

Three dreams were obtained. The first and second were of a burglar entering the window. The analysis showed only that the intruder aimed to shoot her sister who was standing up behind her; a dream of fears of elevators led to no pertinent associations.

As the dream analysis was so unfruitful, I believed it best to at once proceed to reconditioning of the psychological reactions. This was attempted in the first place by studying the child's power of understanding of what I gave her to read about the psychology of fear, and by making clear to her what she could not understand alone. In the second place she was given exercises in mental concentration, and as she became more proficient in these was urged to apply them to the study of her own feelings of nocturnal apprehensions. The principle she was made to grasp was, that fear and shame of her fears prevented her from facing and examining them, which was the essential preliminary to the understanding which would make them disappear. In ten days she returned home not yet able to sleep alone but beginning to obtain mastery. A month later her mother wrote me that she was entirely well and when she wakened in the night would quietly turn over and go to sleep without troubling anyone and was physically and in mental health better than at any time in her life.

On reading this and other cases I am dissatisfied by the baldness of the presentation but where one is performing the innumerable refinements of analytic and synthetic psychotherapy, it is impossible to turn round and write them down, and if they could be written down, the length of the case would forbid its reading. It would be as if a surgeon in relating an operation were to write down each turning of wrist or bending of finger. Psychotherapy of the more refined sort is an art of which only the principles are practicably describable, for otherwise each case would require a book.

*Hysteria with obsessions following overtenseness and exhaustion and phobies of eating consequent upon gastroenterological prescriptions.* I was consulted by Dr. Jackson concerning a woman, aged 31 years, having three children, one aged 6 and twins aged 4½.

After the first child was three months old, she "was unable to do anything for six months, and has never been really well since." After the twins were born she was able to do some work. She prepared the food for the twins and gave four music lessons a week. The twins were frail. Now she has been off and on in bed for the last six months. A trip to California for two months bettered her spirits, but not her physique. Now she is really dispirited for the first time, "the tension of the children" now always on her mind.

*Symptoms.* Chief trouble has been fatigue, but now she feels worried, cannot concentrate and is obsessed by what she calls "problems." The chief of these has to do with her diet; it arose thus: A gastrologist stuffed her and her visits to his office exhausted her and she felt scruples at not taking the diet, which began last March. She had feared to eat because it made her uncomfortable. She lost weight one week while stuffing and the doctor said "starve" for a week. Her actual diet now consists of:

Breakfast—Two eggs, four slices of bread, a cereal, no milk, because it makes gas and gives headache, weak tea, no fruit, even cooked, as it causes distension and has upset the patient since the birth of the first child, and once she threw up an orange. Breakfast, two raw eggs.

Dinner—A raw egg; no sweets because they upset.

Supper, 4:30—Same.

Before Bed—Broth or raw egg.

Between meals—Broth or an egg, but this makes the patient feel nervous because she thinks she has nervous indigestion and has antipathy to eat between meals.

Appetite was always good until the last two months.

Weighed 84 pounds in 1892; now weighs 89 pounds; she used to weigh from 98 to 110 pounds.

Panics—She may get angry, but rarely and only inside, sometimes cries; becomes "tight" in the bowels, arms and legs; at least she feels so, but if aroused can think if a great effort is made.

She is angry with herself for not doing better, and cries when telling this.

She is rather hopeless at fate, but not quite for she

can laugh (does so at the whole situation while speaking of the subject.)

Tension—Has felt "tension" since the birth of the first child. She called it muscular rheumatism contracted from sitting in a porch. She feels worse when nervous or if she has anything voluntary to do.

In the abdomen there is actual "cramp," for which she asked for narcotics; *e.g.* when she lets the effort to stuff go, the tension cramp lessens. "It may cause a heart pain or a pain in the chest, and as the breath is suspended breathing makes it hurt more." Her doctor told the patient that what she thought was indigestion was really nerves, viz., the feeling of the tightening of the muscles.

There was much flatulence, as it appeared to the patient; but the abdomen was actually flat and the passage of gas was slight and only followed relaxation.

She fears to eat because some things upset her, not because of the fear of indigestion now.

She always eats with a feeling of hurry, even when eating slowly. She says that even if she dawdles, she can finish a meal in 15 minutes. The patient feels muscularly weak all the time now.

Examination—Muscles extra strong.

Reflexes x x.

B.P. 116-92.

*Treatment.* Removal from home for two weeks, relaxation of the rigid diet without letting her know it; exercise for physical upbuild, gradual psychic hardening by performing what she found difficult. These measures carefully supervised in a few weeks enabled the patient to return to the management of her house and a happy life with husband and children. In this case the family physician ably succeeded in carrying out the disciplinary measures.

*Attempted Suicide; Psychogenesis; Therapeusis.* A farmer's son, aged 22 years, after some weeks of moody behavior, threw himself into a creek. He was quickly rescued by his brother, who reproached him severely. This did not deter him; for a few weeks later he swallowed laudanum. This led to his removal to a sanitorium, where after a few weeks he crushed and swallowed an electric light globe. Later, he gained access to a medicine cupboard and again swallowed laudanum. So his friends in despair brought him to a doctor friend in Washington, who immediately asked me to see him.

Examination showed no physical disorder; but I discovered that there existed a serious psychological situation, which no one had ever suspected, much less attempted to penetrate.

The boy was so ashamed of himself, although still determined to commit suicide, that it was hard from his whispered utterances to reveal the facts from the analysis of which was furnished the very simple explanation of his distressing predicament.

To state the position briefly: Upon this boy has developed since the death of his father, the management of his mother's farm. But a younger brother had succeeded in interfering a good deal with our patient's plans, much to his mortification; and when also neighbors' meddling was acquiesced in by his mother, the situation became intolerable, as he had already failed in an attempt to work happily in another environment which he tried for over a year. So that suicide seemed the only escape. The manner in which the psychological situation was ascertained is best judged from a transcription of the questions and answers of part of the examination:

"What is the matter?"

"Stomach troubles; if I could get well I would be all right."

"Have you any pain?" "No."

"Why are you then complaining?" "Because my bowels do not work."

"Why take so much laudanum?" "Because I think I should be better off if dead." To a further question, "If I could be cured I would be content." "I could not stand being worried by my brother of 19 and my sister, who is 24, and my mother. I want to go and work for myself; I should get on better."

(He had forgotten to mention his sister and when she was mentioned, he stammered.)

"They pick on me, for example, if I get up too early; and I always feel I could not do the things I want to do. But when I went to California, I felt uneasy even when working alone. I have been dissatisfied all my life. I do not know what my trouble is or what I have done different from any one else." To a further question: I went to school."

"Have you done anything with which to reproach yourself?"

"No. I think there must be something wrong with my brain." To a further question: "The whole case is imagination."

"Why do you think so?" "I do not know."

"Since when have you thought so?" "Since four years ago when neighbors would interfere with what I had done on the farm, for example, in planting the corn, people would comment upon it and my mother would take their advice and overrule my way."

"Why do you take it so hard?" "Because I have poor judgment."

The inquiry was then pushed with regard to his relations with the opposite sex. He declared that he had liked their society, although he did not dance and was not "immoral" as he called it, but he confessed his bashfulness and also that he thought girls were not worth spending so much money upon as was necessary; he did not think they were dependable and he had decided not to marry because of seeing so much of married life; he had never cared for any particular girl, although he had often desired them, but had not the "face" to make advances towards what he thought to be wrong, as at school boys and girls had been separated; besides the girls laughed at his timidity. Accordingly he told the other boys that their indecent talk was wrong and was laughed at for his pains and made still more bashful and ashamed.

However, he had dreamed of erotic situations,

which made him feel ill; and he feared it would injure his health. As a small child, his dreams had been terrifying, such as falling and being killed, or being run away with by horses; but these had not troubled him since. There had been no spontaneous diurnal emissions; but he has provoked them until he was 18 and had then ceased to do so, as other boys often teased him about it and said that he would be impotent as he had ruined himself hence he was much ashamed.

*Interpretation.* The failure of this boy to stand up for himself was due to his own shame at the onanism he had practiced and his fear that it was injuring his mentality; so that he was not able to stand up against other boys, by whom he was much teased, in consequence of which he withdrew from social life, especially where girls were concerned and became taciturn and irritable.

He had to confess that if he could be well of "a hopeless mental inferiority which masturbation must have caused," he would be willing to live and would like to work.

*Treatment.* He was assured and examples were given him to show that he was quite mistaken about the effects of onanism; and he was asked to think over until the next day the explanation I gave him concerning the genesis of his shame and timidity, meanwhile promising not to attempt suicide until he had seen me again.

The next day discussion was resumed, until, in less than a week the boy could be trusted alone, not only in the hospital grounds but in town. He went home in ten days perfectly cured. The pains referred to the stomach, which of course disappeared, were merely an attempt at fixation of his discontent upon a bodily symptom. The glass swallowing furnished the suggestion for this, a very common mechanism in hystericals. He has been at work and in good spirits ever since, now nine months ago. The treatment was conducted in a general hospital and the maximum of freedom was allowed the patient from the first, the greatest tact being urged upon those who nursed him.

It should not be necessary to point out that much of what the patient said about renouncing marriage for instance, was a mere excuse for his own inadequacy and shame. But it is necessary to assert that the sexuality as such was not the important feature in this case in spite of its conspicuous featuring in the history. The really efficient pathogen was incapacity of social adjustment due to shame at his own failure in social adaptation because of the half-heartedness of his attempts, due to erroneous notions about the consequences of his conduct.

The patient actually knew all the facts, but from ignorance he was unable to interpret them. When their import was understood, he learned to adapt in only a few weeks. The case is again an instance of conceptual error of which the affective situation is merely consequential and spontaneously disappears upon rectification of false notions which produce it.

*Love-sickness in a man.* Another case of contemplated suicide, in a young banker, was caused by a period of prolonged strain and overwork, culminating in a serious rupture of an engagement which had lasted six years. The patient was lachymose, agitated, trembling by fits and starts; he would rush from the table suddenly with the desire to kill himself, or break into tears without provocation, especially when with his family. At his work he appeared comparatively calm, but it was only by an intense effort which further debilitated him. He had lost forty pounds in weight. His relatives exerted him to buck up, forget it, or sometimes chaffed him about it all. This only aggravated his distress which a progressive insomnia kept augmenting.

The treatment used was to convince him of the need of distraction from his painful ruminations and that this could be done only by hard physical work, which would at the same time increase his resistance to painful memories, by removing the weak irritability of his nervous system. He was sent to the country two or three times before the right kind of place was found and before he learned to arouse himself from the bodily lethargy and mental concentration upon his trouble. Eventually the right place was found where wood-chopping and farm work kept his mind occupied and restored him physically. He now feels better than he has for ten years and is again at the head of his business.

The love-sickness of this patient was only one of the factors in the case, but it is frequently the outstanding feature of a nervous breakdown. It is very wrong to meet it lightly. The proper analysis of the situation should always be undertaken and the cooperation of the patient enlisted toward overcoming the troubled mental state. There is practically always some psychological fact concerning which the patient needs enlightenment after which he can manage the situation.

SUMMARY.—What is familiarly known as the influence of the mind over the body needs no illustration now-a-days; and a historical retrospect would only burden an attention likely to be strained by what is already involved. But an understanding of how disturbances apparently physical, are easily influenced by means we call mental, is clouded in errors most detrimental to the understanding of not only what we call individual disease but of the behavior relationship of human beings in general.

My first endeavor has been to expose the fundamental fallacies and dangerous implications

imminent in the practice of those persons or sects who pride themselves upon being non-medical. But my hearers may take no pride that they are not as these, for my second endeavor has been to show that for the most part the mental healing of many medical men is not only less efficacious, but more unscientific than that of the mental healers themselves. I have made no explicit demonstration of this latter contention; for it is so apparent among the facts related that even he who runs may read. My third endeavor is to convey an inkling at least, of the principles of the methods which should be used against certain functional nervous disorders. It is not only the limitation of time which prevents a full exposition. A more important reason is the lack of record of therapeutic details, absent because the attention of the operator is so fully occupied in the practice of his art that it is not possible for him to describe his procedures at the moment; but the main obstacle to adequate presentation of psychotherapeutic method is the great lengthiness of the portrayal to which it would take one for the most interesting, important and instructive type of case, unless one were to employ a combination of phonograph and cinematograph, a stage not yet reached in current clinical teaching.

The therapeutic results of the kind I describe are by loose thinkers attributed either to suggestion, to faith or to confidence in the physician and it cannot be too strongly stated that neither of these factors is the true one in any of the cases with which I have to do.

Were confidence the important element, I should not succeed where the family physician had failed; for while in him the patients usually put a trust almost blind, to me most of them have come almost sceptically. Confidence, of course, has to be gained; but as neither apparatus nor manner is of an imposing character in my consulting room, that confidence comes only as a result of the patient's appreciation that an understanding of the situation is being developed.

As to suggestion, I take the greatest pains to avoid fallacious short cuts to the removal of symptoms, of which I seek to reach a foundation by giving the patient a rational understanding. When this is done, the patient needs no moral support from the physician nor anyone else; for having learned his own psychology he knows how to direct himself. Hence, when the cure is complete, relapses do not occur.

It would have been desirable to have included in this account some cases which had already visited in the faith healers without success. I have several such, of which unfortunately, social considerations prevent the full report, without which there would be little instruction to readers.

1705 N. Street.

DISCUSSION.

Mr. Solomon: The remarks of Dr. Williams are extremely interesting and they are practically along the line of the scientific. If we consider faith healing methods we must come to the conclusion that practically all of them depend on suggestion and they treat the patient as if he were feeble in will power and mind, as if he had no personality of his own, as if he were rather infantile, as if it were unnecessary for him to understand the cause of the condition. The fact is, therefore, that all the faith healers, whether they are of one denomination or the other, depend on their results upon the ignorance of the patient, upon the relative degree of infantile attitude that the patient may have. To really have gotten results in psychotherapy, to treat the patient as if he could understand things, we have got to do away with all the faith healers who know absolutely nothing about the constitution of the body, the constitution of the mind; they don't know anything of the inter-relation of the emotions, of the effects of the emotions upon the mental constitution, and also they know nothing of the effects of the emotions upon the secretions in general. Psychotherapy is the science which Dr. Williams has referred to. We try to get down to the root of the conditions to find out the reason why the patient has the fears, the certain defects which he in particular may have; we then endeavor to build up the will power, the adaptation of the individual to the situation which he is in. If we show him how certain ideas of habits which he has, how they started, what the genesis and the evolution of the condition is, he can understand it as well as anybody else; but the understanding of the cause is not the cure. The understanding must be followed by the development of the will power, the awakening of the emotions and of the interest in the patient, in stirring in him all the will power which is still in him, but which he has not been cultivating to any extent.

Dr. Singer: I regret I did not hear Dr. Williams' paper. I feel he is doing a very excellent work in psychotherapy, the method as pointed out is strictly physiological; is founded on facts which are capable of demonstration and is unquestionably one that has come to stay and do an immense amount of good, not only to one patient, but to society as a whole.

# THE PREVENTION OF NERVOUS AND MENTAL DISEASES.

C. F. NEU, M. D.
INDIANAPOLIS, IND.

The role of preventive medicine has probably made greater strides during the last twenty-five years than in any similar period of time and judging from present view-points the practice of medicine of the future will, to a great extent, be the prevention and eradication of those conditions which tend to predispose to or produce disease in or of the human organism. In the future of medicine the mere combating and removal of disease must play increasingly a more and more subordinate part. It is now generally recognized that most if not all diseases can be prevented and it is possible to remove the causes where recognized long before disease begins. In the removal and eradication of these causes the problems of hygiene and sanitation occupy the foreground. One has only to note what is being done at the present time not only by members of the medical profession as such but more particularly by health boards and other organizations representing not only localized communities but also those of state, national and international scope.

Take for example the single question of tuberculosis. At the recent opening of the tenth annual meeting of the National Association for the Prevention of Tuberculosis, Dr. Charles Hatfeld, one of the directors, reported that there were more than 2,500 anti-tuberculosis agencies now well established, which included 550 tuberculosis sanitaria and hospitals, 410 dispensaries, nearly 1,200 anti-tuberculosis associations, and 250 open air school and fresh air classes. He also states that while the entire budget of the national office for the period of ten years had been only $200,000, federal, state and local anti-tuberculosis agencies, both public and private, had expended during the same period probably $100,000,000.

The last legislature of the state of Indiana appropriated for the work of the State Board of Health $72,000 annually. This, however, is relatively a small amount in comparison to that spent by local city, town and county boards for public health work. Assuming that it is no more than an amount equal to that spent by the State Board of Health, it gives us $150,000 spent by the State of Indiana for public health purposes annually. Assuming further that this is about the average amount spent by each state, we have approximately at least $7,000,000 spent in the United States alone in the effort to prevent sickness and to improve the health of the people in general.

That much benefit is accruing from the work thus carried on by the various health organizations can scarcely be questioned. We have seen the practical eradication of malaria, of yellow fever, of cholera, of typhoid fever and other diseases, infectious and contagious in nature, as well as a definite diminution in frequency and mortality of a great many other diseases.

There is however a branch of preventive medicine which has not and is not keeping pace with the general progress that is being made and that is in the realm of nervous and mental diseases. It is true, of course, that any measure which tends to improve and benefit the general physical health must more or less directly improve and benefit the state of health of the nervous system, particularly in regard to those diseases of the nervous system arising more or less directly as the result of bacterial and toxic conditions affecting the human physical organism. But this cannot be said of those nervous and mental conditions which are more or less directly due to or dependent upon a defective inheritance or a pernicious, improper rearing, education and training during that period of growth and development when the make-up of the organism is being moulded and fashioned in preparation for the struggle for existence, during that period of its life when it is the most impressionable and responsive to the conditions under which it lives and the influences that are brought to bear upon it. It is to these particular phases of preventive medicine that the scope of this paper will apply.

The importance of this phase of the question is indicated by the fact that according to the Report of the U. S. Bureau of Census in 1910, there were at that time in institutions for the insane 187,791 inmates, and in institutions for the feeble-minded 20,731 inmates, making a total of 208,522 under institutional care, a number which is said to exceed the combined enlisted strength of the U. S. Army, Navy and Marine Corps; and also to exceed the number of stu-

dents enrolled in all the colleges and universities of the United States.

The cost of maintenance of the insane in institutions, as given in the Report of the Bureau of Census of 1904, numbering at that time 150,151, is $21,329,228, which does not include the cost of maintenance of the feeble-minded under institutional care. Assuming that the cost of maintenance in 1910 was in the same proportion as in 1904, the amount expended must have amounted to more than $30,000,000, but since the cost of living has been rising higher and higher during these years the cost of maintenance would be proportionately higher. In the State of Indiana, according to the report of the State Board of Charities ending Sept. 30, 1913, there were enrolled under institutional care 5,503 insane and 1,490 feeble-minded and epileptic. The amount drawn from the state treasury in 1913 for the regular maintenance is given as $1,257,-359. This in a state, the population of which is approximately 2,750,000. Assuming that the same relative proportions exist throughout the United States and there is no reason why Indiana should be more unfavorably situated than other states as regards these conditions, it may be estimated that there are at least 300,000 under institutional enrollment, with a relative cost of maintenance of nearly $100,000,000. The great majority of these are fundamentally and constitutionally defective and one is comparatively safe in saying also that the majority of these, had they been properly reared, trained and educated during the earlier years of their development, could have been made self-supporting and useful citizens or if proper control and management were exercised during the years of maturity could at least be made self-supporting, instead of being not only an economic drain, but also a moral and social menace to society.

The President of the American Statistical Association in 1910 reported that there were present in penal institutions at that time 113,579 prisoners, equivalent to 125 per 100,000 of population, and that during the calendar year there were committed to prison 479,763 persons. He also stated that "one cannot even hazard a respectable guess in regard to the number of criminal acts that resulted in the apprehension of alleged perpetrators and what proportion they bear to the number finally brought before the criminal courts. There may be and probably are more than 1,000,000 arrests in the United States annually."

While it may be true that many of these, based upon past standards, cannot be regarded as psychically defective, yet a closer psychological and physical study of these individuals by modern methods and according to modern standards, discloses a defective or abnormal trait in the make-up, due either to a bad heredity or to a defective rearing and training. According to Dr. Goddard, of Vineland, N. J., there is every reason to believe that from 25 to 50 per cent of our criminals are feeble-minded. If it were possible to estimate the amount of money that is spent annually in disposing of these individuals, the cost of capture and arrest; the time, money and energy spent in the endeavor to convict and defend, and the amount that is lost or spent in taking charge of them after conviction, the figures would undoubtedly be appalling.

Or take another class of individuals, the prostitues, that group who are to a great extent responsible for scattering broadcast two great, if not the greatest plagues of the present day, gonorrhea and syphilis. It is generally conceded that the majority of these individuals are mentally defective. Dr. Maud Miner, secretary New York Probation association, found that many of the young girls entering prostitution were not normal mentally; were either feeble-minded, constitutionally inferior, or so-called border-line cases. In reference to this conditon, Dr. Goddard says, "that a large proportion of prostitutes are mentally defective, easily led into the life because of natural impulses and our lack of control of them." Dr. Wilson, of Philadelphia, in a paper dealing with the question of eradication of the social diseases in large cities states "that there are approximately 544,250 public prostitutes constantly in the United States, all of whom are infected sooner or later and constantly re-infected with venereal diseases." He also estimates that there are at least three clandestine for every public prostitute, which would create an army of nearly 2,000,000, who must be considered as foci of distribution of infections, and the number inoculated annually would be appalling were it possible to determine it. The effects of these infections upon the physical and mental health of the individuals concerned are sufficiently disastrous, but unfortunately it too often involves the health

and happiness of those more or less directly related to or associated with them. The cost of treatment, the loss of earning capacity, the desertions, divorces and broken homes, the physical and mental wrecks brought into the world, the hospitals and asylums made necessary to care for them, are only a few of the results which the innocent members of society must bear with the guilty ones.

Again, let us consider another group of individuals, those addicted to alcohol or other drug intoxications. Whether this addiction be but the manifestation of a pathologic state of the mental and nervous system, or whether it be the cause of that pathologic state is a question which is the subject of a great deal of controversy. That the excessive use of alcohol is an important etiological factor in the production of nervous and mental diseases can scarcely be questioned. Von Ziehen, of Germany, regards it second only to that of heredity taint. Probably the most reasonable conception of this condition is given by Dr. Neff, of the Foxborough Hospital for Inebriates, Massachusetts, who regards drunkenness as denoting either a disease or a habit. According to Branthwaite, the pathologic inebriate is represented approximately as somewhere between 2 and 2.5 per cent of all alcohol users. Further study of the mental capacity of these individuals and increased knowledge of this condition will doubtless justify the opinion now held by some authorities that a very large proportion of our drunkards are feeble-minded, and the drunkenness is merely a habit easily acquired or a manifestation of disease, a result of that feeble-mindedness. It is not the habit or disease condition that is inherited, but a predisposition or tendency which remains latent or becomes active according to the influences of environment and education during the years of growth and development. As to whether alcoholism can produce mental deficiency in the offspring, Dr. Groszmann in discussing this question states "that we should be very cautious in assuming that alcoholism can be considered as a hereditary cause of mental deficiency in the offspring. Alcoholism should be considered rather as a symptom of a deeper constitutional defect, one of the evidences of degeneracy."

There is still another group, larger than any of the preceding which must be looked upon as border-line cases between the normal individual, capable of exercising what is regarded as a normal control and responsibility of actions and conduct in relation to the social fabric of his environment, and those individuals whose actions and conduct bring them into conflict either actively or passively with that social fabric. These individuals are permitted every right and privilege enjoyed by the normal person and are supposedly able to maintain the average standards and fulfill the average requirements of the life that surrounds them, but the problems of life to them prove insurmountable. In the struggle for existence they drop by the wayside and go to make up what we are pleased to call our derelicts and ne'er-do-wells, many going to make up our tramps and vagabonds. In this group also may be included those who under ordinary conditions may be able to exercise a normal control over their actions and emotions, but let any special strain or stress be thrown upon them and they cross the boundary line into the realm of the abnormal. They go to make up our so-called hysterias, neurasthenias, hypochondrias, the sexual perverts, the moral degenerates, and the hoodlums, the incorrigible and the inhuman. In reference to this class, Dr. Goddard states:

> We have recently discovered that there are many feeble-minded persons who are not recognized as such by the ordinary observer. They do not show any of the stigmata of degeneration and are not found out until they have done something wrong. Even then their wrong-doing is more often attributed to wilfulness than to inability to do right, yet who are thoroughly irresponsible for the acts they commit, who cannot compete on equal terms with their fellows, or manage their affairs with prudence, in short are incapable of living an independent existence, but must always be dependent upon others.

In a critical examination of the fundamental etiological factors at the basis of these various groups, it becomes evident that a relatively small number of them have resulted from or are secondary to some gross physical disease or injury and that underlying the greater number by far are the two conditions already mentioned:

1. A bad inheritance constitutionally.
2. An improper rearing, or bringing-up.

Von Ziehen has found what he regards as an hereditary taint or endowment existing in from 50 to 90 per cent of mental diseases; that in 60 per cent of all institutional admissions an undoubted hereditary taint exists, it being more frequently present in some forms of mental dis-

ease than others. If this be true of mental diseases proper and as a matter of fact all authorities recognize a bad heredity as playing an important part, it must be relatively true in regard to other neuropathic and psychopathic states.

Cannon and Rosanoff in a report of the study of Heredity in Insanity in the Light of the Mendelian Laws submit the following propositions:

1. If both parents be neuropathic, all their children will be neuropathics.
2. If one parent be normal, but with a neuropathic taint from one parent, and the other parent be neuropathic, half the children will be neuropathic and half will be normal, but capable of transmitting the neuropathic make-up to their progeny.
3. If one parent be normal and of pure normal ancestry and the other be neuropathic, all children will be normal and capable of transmitting the neuropathic make-up to their progeny.
4. If both parents be normal, but each with a neuropathic taint from one parent, 25 per cent of the children will be normal and not capable of transmitting the taint, 50 per cent will be normal and capable of transmitting the neuropathic taint, and 25 per cent will be neuropathic.
5. If both parents be normal, one of pure normal ancestry, the other having a neuropathic taint from one parent, all the children will be normal, half of them capable of transmitting the neuropathic taint, the other half being incapable of transmitting it.
6. If both parents be normal and of pure normal ancestry, all the children will be normal and incapable of an hereditary tainted transmission.

While some authorities are inclined to attach the greater significance as an etiological factor in the production of neuropathic constitutions to a defective inheritance, there are others who look upon an improper bringing-up as the predominating factor. Even Von Ziehen asserts that what is inherited is only a tendency or predisposition to which must always be added other factors acting injuriously.

Dr. Smart, medical examiner of the mentally defective children in the department of Education of New York City, in discussing the question of "The Relation of Physical Inability and Mental Deficiency to the Body Social," reports:

In 10,000 cases presented for examination chosen at random to determine their physical and mental fitness for the work required of them in the school grades, in every instance where the child had fallen behind others of the same grade and age and had continued to retrogress, she found positive physical defects, and with many the combination of physical unfitness with a serious mental defect. Many of the physical defects could be cured, the greater number very much bettered, but the mental unfitness was regarded irreparable. The main physical defects reported and the frequency of occurences are given as follows (in percentages): Enlarged tonsils and adenoids 77, ocular trouble 75, dental defects 71, defects of hearing 50, anomalies of speech 42, sexual disturbances 41, neurotic conditions 37, nasal defects 34, cardiac defects 29. The frequency of these conditions indicate the advisability and necessity of a closer and more accurate examination of the physical status of the child earlier in life, before ever being sent to school and there discovered, for by that time much harm has already been done often irremediably so, both physically and mentally.

If to the hereditary taint and the physical defects there be added an improper education and training, we have a triad of etiological factors responsible for practically all of the abnormal conditions under consideration. This improper education and training will be found to be active from birth, for the very individuals who procreate and produce offspring hereditarily tainted, very rarely recognize or admit the possibility of possessing qualities in their own constitutional make-up which could possibly be transmitted to their offspring and as a consequence these very individuals are the least suited or the least capable of rearing the unstable organism which they have produced. It is in early life that the foundation is laid for many of those habits of life which prove to be so injurious and pernicious in determining and modifying the thinking, feeling and acting of the individual in the years to come. While in many of these individuals the regime and control carried out in school life exercises a beneficial influence in that they are made to recognize the principles of self-control, discipline and authority, yet too often their unstable make-up is not recognized even by present methods of school inspection. Furthermore, the few hours spent under schoolroom supervision cannot possibly counteract the influence of the lack of control and management during the extra-school time.

Dr. Crampton, director of the physical training in the department of education of New York City, stated "that the great failure of education of today is the inability to recognize the fact where it is absolutely essential that it should, that children differ in rapidity of development, both physically and mentally." This, if true and there is a great deal of evidence in support of the statement, is of particular importance in re-

gard to the treatment and management of them during the educational period.

We are coming to see more and more that the mental environment of an individual is quite as important for the acquisition and maintenance of good health as that of other external conditions. We are recognizing more and more that the mental environment affects not only the mental and nervous activities, but also more or less definitely the various physical functions of. the body, thus influencing both directly and indirectly the mental health. While it has generally been recognized that intense emotional conditions, such as fear, pain, sorrow and pleasure, exercise an influence upon some at least of the physical functions of the body, fear, pain or sorrow lessening the appetite, producing lessened energy and activity, etc., motor or mental, pleasure producing the opposite results it has only recently been placed upon a definite scientific basis by experiments carried out by Cannon and others who have shown that the emotions, for example, fear and pain particularly, increase the flow of suprarenal secretion, which continues some time after the subsidence of those emotional states.

We must bear in mind the necessity for a stable, well controlled, well regulated nervous system in the maintenance of a sound body and mind, and recognizing this necessity the question arises, "What are the conditions or requirements necessary for the creation of a stable-acting nervous system?" Dr. Barker of Johns Hopkins Hospital in outlining the scope of the work of the National Committee for mental hygiene said:

> Modern medicine has taught us that the conditions necessary for a good mind include:
>
> 1. The inheritance of such germ-plasma from our progenitors as will yield a brain capable of a high-grade of development to individual and social usefulness.
>
> 2. The protection of that brain from injury, and the submission of it to influences favorable to the development of its powers along normal lines.

Considering the enormous amount of money, time and energy that is being used up in caring for those confined in the various institutions and the meager results that are being attained, whether considered from a social, moral, intellectual or economic viewpoint, and considering further that still larger group who fail to measure up to the average standard of mental capacity and yet are allowed the liberty of action that is accorded the normal individual, who in spite of their failures and deficiencies are permitted to bring into the world beings who must inevitably bear the stamp of the defective stock from which they spring and who in addition, in spite of their unstable and defective judgment, are called upon to assume full charge of the management and training of those tainted beings until they reach an age when the latent force of a bad inheritance has already been awakened and the injurious habits of a pernicious rearing has already been inculcated, the only reasonable conclusions to be made are:

1. That wherever it is possible, every individual whose constitutional make-up is such that any offspring propagated therefrom will inevitably be defective, that individual should be denied that right or privilege. Many sentimentalists and so-called humanitarians will no doubt regard such a restriction of personal rights and liberties as unjust, inhuman and cruel, and yet we may ask which will be the more just and human, to restrict the rights and liberty of a single individual, or to give that defective individual with his inherent abnormal proclivities full sway and allow the procreation not of one but usually of many beings who can never obtain an equal footing or an equal chance in the struggle for existence? It certainly does not require the exercise of any superior intelligence to decide which procedure will in the end be the more just, more human and the wiser.

2. That whenever and so soon as it is recognized that the constitutional make-up of the child is defective and that it possesses an unstable nervous organization, or that the environment and training of that organism is pernicious, that child should be placed in that environment and under that instruction which will enable it to develop and acquire those habits of life which will be the most likely to insure a healthy body and mind. To do this, we must study the physiological, physical and psychical make-up of each individual child, its capabilities, its habits, its emotions, its affective condition of well being, its general and special physical organs and their functioning.

In regard to the first proposition, it may be said that while various state legislatures have been enacting laws denying certain groups of defectives the right to marry, yet the number thus prevented will doubtless be very few. Experi-

ence shows that these laws are not an inseparable barrier to such individuals when they wish to marry, and the majority of them do. Thousands of feeble-minded, of epileptics, of alcoholics, of neuropathic and psychopathic constitutions, of derelicts and criminals are allowed to intermarry year after year, regardless of such laws, and produce thousands of defectives who must inevitably become a social menace and an economic burden. It is only too evident that the mere making of laws as they are at present must prove wholly ineffective so long as these individuals are accorded their full liberty of action. The only effectual method from the present viewpoint is for the state to assume guardianship of such individuals and refuse them that privilege or destroy their procreative properties. There are, of course, many objections that can be offered against such a measure as the last. There would be opposition from many sources, but apart from the destruction of that function by sterilization it is doubtful if any other measures can be utilized that will materially lessen the propagation of defective offspring by them.

Sterilization has its advantages and its objections, its advocates and opponents. The procedure itself is a comparatively safe and harmless one to the individual. But the most serious objection, I believe, is that it places the individual in a position where his sexual nature can be exercised without any restraint, if ever such individuals are restrained by the fear of possible conception taking place, and this affords the greatest opportunity for the diffusion of gonorrhea and syphilis, those great, if not the greatest scourges of the civilized world of today. Furthermore, sterilization laws of the present time are entirely too restricted in their application. It is not the confirmed criminal who spends the most of his time in the various correctional and penal institutions, nor the extreme mental defective who also must be cared for in one or other of the charitable institutions who are the source of danger, but it is more particularly to those milder forms of defectiveness that more attention must be given, those individuals who in spite of the average opportunities of life never get above a condition of want and drudgery, or a proper control of their emotions or their morbid cravings. As an illustration, the writer has in mind two families, particularly, who have come under his personal observation during the last two years.

One is a German family consisting of father, mother, and seven children. While both parents are honest, hard working and frugal, and have been able to supply the ordinary wants of life and to meet the ordinary demands of life, yet it is quite easy to recognize a low grade of mentality in both. The oldest child with difficulty maintained a passing grade in his school work. Pubertal changes were delayed until the age of seventeen. He manifested physical evidences of hereditary syphilis, as shown by Hutchinson's teeth, and by giving a positive Wassermann of the blood. At the age of eighteen he was committed to a hospital for the insane because of the development of what was regarded as the catatonic form of dementia praecox. While some improvement in his mental condition has taken place enabling him to live at home and to carry on some form of physical work under the supervision and direction of someone else, yet the family is constantly seeking advice because of his peculiarities and eccentricities in action and conduct. The second child at seventeen also was committed to the insane hospital because of a maniacal attack which lasted about three months. As yet the other children do not manifest any marked deviation of mentality except backwardness in their school work. This in conjunction with the tendency to a Mongolian type of features indicates the probability that they too will manifest mental deviations at one or other of the critical stages of life. The other family was of foreign extraction, and consisted of father, mother and five children, with the sixth on the way. The oldest was fifteen, the youngest two. The father was alcoholic, the mother of a low grade of mentality. All the children were mentally defective, the four oldest ones being committed to an institution for the feeble-minded. What an economical saving it would have been if the function of procreation had been abolished or if these individuals had not been allowed to marry. It must, it is true, be admitted that laws simply to prevent intermarrying will not solve a problem of this kind, for if not allowed to do so legitimately they would still satisfy their natural proclivities by illegitimate procreation.

In dealing with the second proposition, namely, that of the child, many conditions come up for consideration. Beginning with the pre-natal period it must be said that there is much to be done, many changes to be made in the management and hygiene of the mother during the period of pregnancy, in order that the pregnant woman may be placed under the conditions most favorable to the production of a healthy offspring. When it is observed how little attention is given to this extremely critical period in the lives of both mother and child, one must admit that the laws of nature are most generous and lenient, in that, in spite of the many injurious influences

brought to bear upon the procreative function and process, they succeed so well in creating so complex an organism with so little evidence of having been subjected to those injurious agencies. The old idea that is so prevalent, that nature will take care of herself under any and all conditions of life is so deeply impressed upon the minds of the laity in general, and indeed also upon the minds of many physicians, that any attempt to change the old order of things meets with a great deal of criticism and opposition. Most of this is due to ignorance, apathy or indifference. It is true, of course, that nature would take good care of herself if provided with the requirements necessary to the fulfillment of her laws in a normal manner, but unfortunately those conditions have been and are interfered with by those artificial agencies of human creation. In order to remedy this, more attention must be given to what may be called the hygiene of the mother during the period of pregnancy, such as proper regulation of the habits and conditions of the physical and mental life, attention to nutrition, assimilation and excretion, etc.

After the birth of the child more attention must be given to the hygiene of its mental and physical development during the critical periods of infancy, childhood and adolescence, for it is at this time that the foundation is laid for the acquisition of habits of life which will make or mar the future, which will leave the pernicious inherited tendencies or predispositions in a dormant state, or awaken them into uncontrollable activity. Defects of growth or impairment of function of any part or parts of the body should be corrected or removed, so far as that is possible, as soon as recognized, and not allowed to run along in the hope that nature will take care of it herself until such changes in the organism have taken place as are irreparable and irremediable. Furthermore, more attention must be given to the study of the development of the mental life of the child, in order that those abnormal tendencies and traits which in the years to come reach that stage of development and exercise that influence upon the life and conduct as to create a conflict with the environment may be the earlier recognized, and measures adopted for their subjugation and for the creation of channels of healthy thinking and acting. It is a common experience to find a child manifesting especially peculiar or abnormal tendencies regarded either with indifference or more frequently as a source of amusement and everything done to encourage and to further cultivate those unhygienic habits and propensities. Here again the general impression so prevalent that nature will take care of herself, that the mind does not require guidance and training but should be encouraged and nurtured along the natural tendencies predominantly manifested, is a pernicious one. It would be just as reasonable to assume that one can become an expert mechanic, a polished artisan or a great scholar without the assistance and guidance of previous instruction and experience.

The mind of the child is fashioned and moulded by the influences of its environment upon its constitutional make-up. It learns by imitating the actions and conduct of those about it, and by the teaching and training of those who care for it. The reaction of the child to its environment, the outward manifestations of the psychological processes taking place, are more reflex in nature than in the adult, are more directly in response to the action of the environment upon its inherent natural tendencies and proclivities. If the mental life of all children manifesting abnormal tendencies could be more closely studied, it seems reasonable to assume that with a better recognition of the processes of abnormal psychology, means will be found whereby those processes can be more readily diverted from their unhealthy channels and guided into those more hygienic and healthy. Unfortunately with the majority of those who later in life become wards of the state, their home influence and home teaching is beyond control. The benefit that is derived from the discipline and teaching of the few hours of the ordinary school life cannot overcome or take the place of the lack of them at home. Too often, moreover, the failure of the teachers to understand the peculiarities in the mental make-up of those children leads to improper and unwise treatment and management being given them, and as a result intensify or exaggerate the already existing pernicious tendencies.

The state should have the authority and be so situated as to be able to assume the responsibility of the care, management and education of those who so early in life manifest those tendencies and propensities which indicate that sooner or later they will become a menace or burden to

their environment. The uncontrollable, the irascible, the incorrigible child with an inclination to steal, lie, or manifesting other immoral or criminalistic tendencies should be a ward of the state for the remainder of its life or until it has fully demonstrated its capacity and ability to conform to the ordinary requirements socially, morally, intellectually and economically. Many of these who become State wards in the early years behave fairly well so long as under that authority and discipline, but when liberated from this institutional control soon enter upon a life of uselessness, shiftlessness and degradation. The State should be called upon to exercise the same control and supervision of them after leaving as while under institutional care and management. It is unjust to most of these individuals, unjust to the community in which they find themselves, to free them from the restraining and disciplinary influences which were considered necessary heretofore. The main objection usually offered against this propositon is that the expense entailed for the State to make provision for and to take charge of them would be too great. But the majority of these could be made practically self-sustaining if the State would utilize them in improving public utilities or in some agricultural or manufacturing vocation. Besides it is extremely doubtful if the primary cost of such a procedure would approach anywhere near what they eventually cost, let alone the economical loss because of their inability to be self-supporting and self-sustaining.

In conclusion, let me say that as conservators of the mental health of our fellow creatures, physicians should and must be better trained in normal and pathological psychology, in order that they be better fitted to give advice and guidance in regard to the care and management of those manifesting psychopathic tendencies. The public must be educated in regard to the importance and necessity of restricting or abolishing, so far as possible, the production of unhealthy beings if there is to be any diminution in the number and cost of maintenance of defectives, as well as of the economic loss from their lack of productivity. And when once the public mind becomes convinced that such measures are necessary for the general welfare it sooner or later adopts the means to accomplish what it desires.

DISCUSSION.

Dr. Sterne: The subject opened up by Dr. Neu strikes at the foundation of things. If we are to get anywhere in preventing, in lessening the degree of insanity and mental deficiency which now exists, or if we are to ameliorate to a degree that which has already well advanced, we must divorce our professional ideas from all sentiment. I don't know what other word to use. The great trouble has been that scientists everywhere, and particularly those of the medical profession, who bring up anything for the welfare of the human race, are immediately confronted by antagonism. The opinion is prevalent that whenever the medical profession stops to do anything in the way of reformation that the medical profession wants something for itself. The medical profession is far from selfish in its ideas and very far indeed from selfish motives in furthering those ideas, but we have got to get down to basic rock if we want to accomplish anything. This country could build a Panama canal every five years with the sum lost through mental deficiency all along the line. It costs in round numbers something like $50,000,000 a year to care for the mental defectives now in our institutions, not counting those outside of the institutions, not counting the gross loss that is occasioned through the lack of earning power of the offspring of these individuals who are confined in the institutions. In other words, it is a big business proposition. Now, whenever we try to combat a proposition of that kind with pure scientific reasoning, we are immediately confronted with the accusation that we are doing something which is not humanitarian; that the individual has a right to propagate his species; that we take away a part of his right; that we rob him forever of something that no power can reinstate to the full capacity. We are getting more and more defectives on account of the "kid-glove" manner of handling the situation. There are just two ways to deal with the situation if we are to stamp it out. One is to take charge of the individual and prevent that individual from propagating his species.

Dr. Zellers: I read in the morning paper that this organization goes on record as being in favor of sterilization as the ideal manner of checking the growth of insanity and defectiveness. Now, I was at the meeting of the medical association at Ontario last year and that very distinguished body of alienists spread its resolution in regard to sterilization and it was passed, and the president, very considerately, asked for discussion on the subject, and the opinion seemed to be unanimous that that was the correct way to dispose of the question. It was just about to be passed when we took occasion to present the western view of this question and then we got through the committee "resolved, that it might be too hasty," and they postponed the matter, allowing it to lie dormant a year and they adjourned after a big meeting and among the things they de-

cided was against marriage without eugenic certificate. This mighty civilization was not created that way. It was created by evolution, by taking the lowly and building them up. No state can afford to take the stand of adopting any measures that will limit human reproduction. If I had time this afternoon I could show you figures that will show you that insanity is not increasing. Sanity is increasing—not insanity. The standard of intellect is growing higher every year. It requires a higher intellect to acquire a position in the world, consequently those that fall on the other side of the normal line of intellect is larger every time. I for one do not like to atttend a meeting when this theory is advanced and I cannot attend this meeting and not raise my voice against its advocacy.

Dr. Julius Grinker: This subject—the prevention of nervous and mental diseases—is so old that one is almost ashamed to say a word for or against any phase of it. I think it has been the effort of centuries, perhaps, to prevent nervous and mental diseases. It is a question in my mind whether we have more nervous diseases today than they had years ago; whether we have more mental diseases today. The methods whereby prevention is to be accomplished vary from time to time. I think the old method of throwing the imbecile or sick child in the river is about the one coming to the front now; some claim it is a good one. I believe to devise a means to prevent mental diseases as well as nervous diseases will require the combined labors of not only the physician, the social worker, the economist and the politician, but the entire community will have to set itself to work. In other words, it is a question of evolution; it is a question of improving the entire race. Sterilization amounts to nothing at all, because it begins with the unfit, those who have already been considered unfit, and those who have become charges of the state, those who have already been kept from mingling with the community; and I think it is the duty of the state to keep them from getting into the community again. The real remedy is not found in any one method. One point that has been neglected is this, that as long as we permit thousands of men and women to grind away their lives in factories, to lead a monotonous existence, we shall have nervous wrecks and neuresthenics among the laborers, who, when they have reached thirty, are worn out.

Although I have been appointed secretary of the committee on the prevention of insanity, I do not know what the committee will decide, or what means they will suggest. Each one can be discussed; one little remedy will avail nothing. As far as sterilization is concerned, it means simply this—that you enable an individual who is already degenerated to go about and acquire the venereal diseases without running the risk of it being known that those people do have a sexual desire, and it is so much easier to scatter venereal diseases. If sterilization is the remedy, then I believe that it should be put down as a normal means of weeding out the unfit among the population. How many morons, how many inferiors are there in the community that are not prison inmates? If we are going to have sterilization, examine our own families, remote and near, and see whether there is not one among them that ought not to propagate.

Dr. S. A. Koppnagle: We say charity should begin at home. I will change it; education should begin at home, and I mean among physicians. If a child is defective, I believe that the obstetrician, the specialist or general practitioner is the one that should be tasked to detect these abnormalities. He cannot detect it probably at once; it will need a little time—probably one or two months, probably longer than that. I want to ask of the physicians here how many of us will give our time to the study of the infant that was born and try to find out the physical, mental and nervous defects that will develop in the future? How many? Raise your hands. No; we do not do it because there are no dollars and cents in it. It is plain. Most of the neuresthenics, most of those who suffer from mental defects, from physical defects and nervous defects come from the working people and it is poverty that forces them to spend their energies and their lives and their vitality in the factory, and it is not until the physicians will raise their voices against their employers that these questions will be solved.

Dr. Neu (closing): In regard to the objection of sterilization I have voiced my sentiments definitely, but that is not going to solve the problem. In regard to segregation, so far as we can see at the present time, that offers a better remedy perhaps than anything else until we find something better. The one advantage of segregation is that, if properly applied, the subject is not a burden to the community. They can be made self-supporting and self-sustaining. If we are to place any reliance upon the Bureau of the Census, the increase of insanity is out of all proportion to the increase of population. There is no single remedy within our reach. We have to make use of all means we have at our command. In regard to the sentiment of the last speaker I think my conclusions answer his statements.

*Tuesday, 2:00 P. M., Hotel La Salle.*

CHAIRMAN: If the committee is ready to make a report on "Alcoholism as a Causative Factor of Insanity," we would be glad to have that report now.

COMMITTEE ON ALCOHOLISM.

Secretary (reading):

Chicago, Illinois, July 14th, 1914.

WHEREAS, In the opinion of the meeting of alienists and neurologists of the United States in convention assembled, it has been definitely established that alcohol, when taken into the system, acts as a definite poison to the brain and other tissues; and

WHEREAS, The factors of this poison are directly or indirectly responsible for a large proportion of

the insane, epileptic, feeble-minded and other forms of moral degeneracy; and

WHEREAS, The laws of many states make alcohol freely available for drinking purposes and thereby cater to the physical and mental degradation of the pople; and

WHEREAS, Many hospitals for the insane and other public institutions are now compelled to admit and care for a multitude of inebriates; and

WHEREAS, Many states have already established separate colonies for the treatment and re-education of such inebriates, with great benefit to the individual and to the commonwealth; therefore, be it

*Resolved*, That we unqualifiedly condemn the use of alcoholic beverages and recommend that the various state legislatures take steps to eliminate such use; and, be it further

*Resolved*, That we recommend the general establishment by all states and territories of special colonies or hospitals for the care of inebriates, and resolved that organized medicine should be initiated and carried on and systematic, persistent propaganda for the education of the public regarding deleterious effects of alcohol; and, finally, resolved that the medical profession should take a lead in securing adequate legislation to the ends herein specified.

Respectfully submitted,

CHARLES L. READ, Chicago,
W. S. LINDSAY, Topeka, Kans.,
T. B. THROCKMORTON, Des Moines, Ia.,
THEO. A. DILLER, Pittsburgh,

Committee on Alcoholism as a Causative Factor in Insanity.

I move the adoption of the resolution.

A VOICE: I second the motion.

CHAIRMAN: Is there any discussion on this motion? It is moved and seconded that this resolution be adopted.

All in favor please signify by the usual sign, aye.

Unanimous response from the ayes.

Opposed—no response. Carried.

Chairman: I hope that we may pass such a resolution. There is a committee which will report on what constitutes a model hospital or asylum and what the duties of the state are to the physician. It seems to me that that could be very well brought in as a part of the duty of that committee. We have some lawyers present in the audience. I am sure we would be very glad to hear from them. The discussion is now open for anyone to inform us from other states or to give suggestions.

Dr. Singer: I fully agree that is a highly important subject and one that needs a great deal of consideration. There is one point on which I might take issue with Dr. Diller in regard to voluntary commitment. A patient who comes to an institution under voluntary commitment is not deprived of civil rights; he does not lose his liberty without due process of law, because he has the right to leave that institution by giving notice of his own accord, and I understand that is true of most of the systems of voluntary commitments. Personally I feel that this voluntary commitment is a very great step in advance, even if a great many patients have to be committed by regular process of law. The idea that a patient should be taken before a court and tried like a criminal in the care of criminal officers because he is sick is certainly a shame to the community that permits it to exist.

I am in accord with the suggestion that some model form of commitment might well be drawn up. Some of them are very excellent. The one in Massachusetts is an excellent one. It is founded on one that is in existence in Great Britain. In Great Britain the certificate of two physicians is submitted to the commissioners in lunacy. The commissioners in lunacy are composed of lawyers and physicians and they pass upon the matter. In Englood, too, they have a system of emergency commitment, which holds good for three days, and all that is required is a certificate of one physician, who should be the family physician. That three days is allowed for the more regular process by petition. There are a great many points in the matter of commitments in this country that need remedy.

Dr. Diller: I would like to see a committee appointed to take this matter up.

The Chairman: Do you want a special committee? If so, the only way to appoint it is by motion.

Dr. King: I make a motion that three physicians and three judges of the municipal court be appointed to form a committee to draft some form of commitment to be reported on at the next meeting.

Chairman: Is that motion seconded?

Dr. King: I wish to modify that motion to read three judges in the municipal and county court.

Dr. Diller: Make it three lawyers; sometimes lawyers are as good as judges.

Chairman: Was that motion seconded?

It is moved and seconded that a committee of six be appointed by the chair, consisting of three physicians and three attorneys, to draft some form of commitment for the insane to be reported on at the next meeting next year. All those in favor please indicate by the usual sign, "Aye." Opposed, no voice.

Chairman: It is so ordered. The committee will be announced later.

---

## COMMITMENT OF THE INSANE IN THE UNITED STATES.

### (The Desirability of a Uniform Commitment Law.)

THEODORE DILLER, M. D.
PITTSBURGH, PA.

In looking over the commitment laws of the various states, they appear to me in general to

be cumbersome and unwieldy and in some cases, as in Pennsylvania, to insufficiently guard personal liberty and protect the certifying physicians; and they are usually at fault in not making adequate provision for emergency commitment. In only two states, Massachusetts and New York, do the laws appear to nearly approach the ideal. In Massachusetts commitment may be made by a judge with whom has been filed a certificate of insanity of the alleged insane person signed by at least two physicians; and within the discretion of the judge this person may be summoned before him to determine whether he is insane. The superintendent of any hospital, with the order of a judge, may receive and detain, for a period not to exceed five days, any person who is certified to be one of violent or dangerous insanity by two physicians as qualified by law. The New York law is pretty much like that of Massachusetts.

The law governing the commitment of the insane varies considerably in the several states of the Union. In most of the states the commitment is made by judge or magistrate upon testimony of witnesses. The law usually requires that one or more of these witnesses shall be physicians.

In only a few of the states is provision made for emergency commitment. In Connecticut in case of sudden or violent insanity a patient may be detained in a hospital for a period not longer than 48 hours without an order of the court. In Massachusetts, the superintendent of any hospital for the insane may, without order of a judge, receive and detain for not longer than five days any person whose case is certified to be of sudden or dangerous insanity or other emergency when certified by two physicians as qualified by law. Michigan also provides for emergency commitment for a period not exceeding five days.

Many states require that a hearing shall be held, notice of which shall be sent to the person who is accused of being insane. Many states provide that the judge shall call witnesses and usually require that one or two of these witnesses must be physicians. In some cases the law requires that the person supposed to be insane must be served with summons to appear in court, while in others the presence of the insane person in court lies within the discretion of the judge. In some cases it is required that the examination shall be made in court. In California the law requires that medical examiners must be present at the hearing and make examinations in open court. Commitments are made by judges of the superior or supreme court, by probate judges, by magistrates and by justices of the peace, and a few states provide for insanity commissions; while in one or two, only certain designated physicians may examine the condition of the supposed insane patient. In a number of states the law directs that a written statement must be made by relatives or near friends or some citizen, stating their belief that a certain individual is insane. Perhaps the most cumbersome law is that in force in Florida. This law requires a petition signed by five reputable citizens, stating their belief that the inidvidual is insane (not more than one of whom may be a relative of the alleged insane person) asking that legal examination be made, be presented to the courty judge or judge of circuit court to whom the petition is submitted without unnecessary delay, appointing as an examining committee one intelligent citizen who is not a petitioner in the case and two physicians of good professional standing.

In a few of the older states, of which Pennsylvania is an example, commitment to a hospital for the insane may be made without an order of court by two physicians who have taken oath before an alderman coupled with a request for commitment signed by a near relative. The same mode of commitment obtains in Delaware, Georgia, Maryland, Mississippi, Rhode Island and Vermont. This law is an anomaly, since it permits two citizens of the Commonwealth, if they are physicians of five years' experience, to deprive another citizen of the Commonwealth of his liberty. Since the law regards as one of the most precious and fundamental rights of all citizens personal liberty, the law should not permit such liberty to be taken from any citizen except by due process of law and then upon official order by a judge of the court. No one should be deprived of his liberty for any cause whatsoever except by due process of law and by action of the court and this rule should apply to the deprivation of liberty on account of insanity as well as crime.

Therefore, the law of Pennsylvania and states with similar laws permitting the commitment of insane persons on the certificate of two physicians, should be so changed as to conform with that of

the fundamental law of the land and of the majority of the states which require that commitment shall be made only by a judge of the court after due investigation which should include the testimony of two physicians made after examination of the person in question who should always have a chance to contest the commitment.

However, since outbreaks of insanity often occur suddenly or an insane person may suddenly commit an overt act which may require for his own good and the safety of the public immediate action, some provision should be made for the immediate and temporary apprehension of insane persons for a limited period of time, a few days or a week; and evidence should be presented to the court as quickly as possible; and he should be subsequently committed in the usual manner.

If a person committed to the asylum because of insanity feels that he should have redress he may, under the present law of Pennsylvania, bring suit against the two physicians who committed him to the asylum. And I know of at least one instance where two physicians who committed an insane person to an asylum were afterwards compelled to defend suit brought against them by the person so committed who alleged that she was not at any time insane. If such persons feel aggrieved, the burden of defending such a suit should not be upon the two physicians who have signed the certificate, but the state or county should bear the burden. And this would be the situation if the law were so changed that commitment were made by judges of court instead of by two physicians as is now the case in Pennsylvania.

Voluntary commitment of insane persons by themselves is an anomaly and cannot stand a logical and legal scrutiny. A man who is sound mentally may make a reasonable contract; but if a man is insane, it is a farce and against all rules of logic to permit him to make a written contract depriving himself of his liberty. No other contract by an insane man is valid. Why then should an insane man be allowed to make one of the most important contracts that can be made, namely one dealing with his personal liberty, the same to be accounted as valid and legal?

I would submit that the ideal insanity law should contain the following provisions:

1. The insane person should always be committed by a judge of the court and not by any inferior county or state official.

2. The judge should be allowed to make such commitment on the sworn certificate of two physicians, who have been in practice at least five years and upon the signed request of a near relative or county official.

3. Provisions should be made that the alleged insane person or friends acting for him may demand and be allowed a hearing before a properly constituted legal tribunal to determine the question of his insanity; and only in cases like this should the insane person receive a summons or be required or permitted to appear at the hearing.

4. Emergency commitment should be provided for pending a commitment in the usual manner.

I would advocate that this Association of Alienists appoint a good working committee, which ought not to be too large, to study this whole situation to endeavor to improve upon and overcome the flaws in the present existing laws. Such a committee should have the co-operation of two or three able and philanthropic lawyers. If such a committee did its work well it might be in a position to make a report which would be of the greatest possible help to the several states of the Union in offering hints by which they might improve their existing laws. I recommend the appointment of such a committee of physicians and lawyers.

---

## DEMENTIA PRAECOX WITH SPECIAL REFERENCE TO TREATMENT.

H. A. Lindsay, M. D.
STATE HOSPITAL, INDEPENDENCE, IOWA.

Since the advent of the term dementia praecox so much has been written and so little valuable knowledge gained in regard to the treatment of its victims that we have felt some aversion to writing upon a psychosis which has been the subject of so much controversy. Some cheer is found, however, when the sum of our knowledge has been contemplated.

Disregarding the borderland and hysterical cases which result in recovery, and confining ourselves to a nosological conception of the group, we may say that the clinical symptoms are fairly clear and by the process of careful elimination there should be, if sufficient time is

taken in the clinic, but little difficulty in diagnosis. Furthermore, those of a considerable experience declare that after close observation of a patient and without attempt to analyze or describe his symptoms they are able to "feel" that he is suffering from dementia praecox. Unscientific as such deductions may be, the fact remains that there are in dementia praecox certain characteristics which may be quickly detected.

Whether or not we perceive the "shut-in personality" spoken of by August Hoch, Freud's "auto-erotism," Janet's "perte du sens de la realite," "dream state" or our own idea of the symptom conplex, we recognize the introspective personality of the paranoid with his inability to adapt himself to material ends, and with his fits of abstraction, his abnormal sensitiveness and suspicious tendencies.

Equally apparent are the characteristics of the catatonic, his resistance against the most natural instincts and impulses, his apparent determination to oppose interference, his muscular tension, mutism, automatism, stereotypy and verbigeration.

In the hebephrenic, silliness, mannerisms and dementia are in evidence.

With increasing knowledge of mental and nervous diseases comes a fuller observance of the accompanying somatic disturbances. These however are not constant or pathognomonic of dementia praecox. Possibly they are more constant in the catatonic form and briefly consist of disorders of motility, sensibility, tendon reflexes, general nutrition, secretions, pupils, circulatory apparatus, the digestive and urinary tracts.

More difficult of discernment are the early conditions, the insidious change of character, for many of these cases have manifested an abnormal individuality since childhood and it is in its incipiency or this pre dementia state that we must detect the disease if we are to benefit these patients. It is with the question of benefit to this most unfortunate class of individuals that we are to deal in the present communication.

Until quite recently the treatment of these patients has been unsatisfactory owing to the fact that the early symptoms were not recognized and the disease but illy understood by friends and local physicians. Because of this the patient did not enter the hospital until the disease had made considerable progress and his friends had become tired of caring for him at home. Upon entrance into the hospital his case was usually regarded as hopeless and little effort was made to relieve his condition. If a catatonic he was allowed to remain in solitude if he chose, reveling in the indulgence of his ego, taking or rejecting food at will and retaining the excretions of the body, thereby lowering his resistive powers and rendering him an easy prey to disease.

If a hebephrenic or paranoid he was given some routine asylum work and without any systematic training he was allowed to follow his own inclinations. The chief feature of his treatment seemed to be custodial care.

Recently theories have been advanced which have revolutionized our ideas relative to the treatment of these cases. It has been demonstrated that psychanalysis has been beneficial in some of the so-called functional nervous diseases; but it is too early to determine whether or not disease dependent upon degenerative lesions of brain substance will yield to such procedure.

It is fairly well understood that in praecox cases a degeneration of association fibers occurs, and we would not presume to say that by proper discipline or re-education of the mind, these degenerated fibres might not regenerate, at least to some extent, or new association tracts be established.

Those who have endeavored to argue insane patients out of their delusions, will agree that it is a useless procedure; yet, we would not discourage those egotists who would lead egoists out of their madness, and perhaps a combination of such efforts with other methods might prove successful; but it is probable that by this means alone it would require a lifetime for one psychanalyst to reduce the ego in a few patients.

The world-wide attention of psychiatrists has recently been called to the work of Abderhalden, Fauser, Wegener, Kafka and others abroad and Simon in this country, concerning ferments in the blood of praecox cases against sex glands and various other substances of the body. Although it is yet too early for the compilation of reliable statistics, we are filled with enthusiasm and trust that the way has been pointed out which will lead to the achievement of definite results through the study of these important psysiologic principles by means of "organ diagnosis."

We now see the pendulum swinging back to toxic substances in the blood, and we may soon learn of the demonstration of ferments in the blood by means of the ultra-microscope, refractometer, polarization and even by means of stains.

Already there are remedies for dementia praecox in the form of such substances as nucleins, etc., which appear to produce an artificial leukocytosis.

Every psychiatrist of experience has noted the apparent improvement in praecox cases following typhoid fever, and many have attributed such phenomena to the fixation of certain biological constituents which previously existed in the blood of such patients. A few have thought that certain products resulting from typhoid fever have been instrumental in terminating the existence of various native toxic substances.

We no doubt will soon hear more of the anchoring of these toxins and ferments. In fact, in the light of the knowledge gained by study of the Wassermann reaction in syphilis and Abderhalden's test in pregnancy, we are able to comprehend the possible chemo-biological changes which may occur in dementia praecox.

If we are prepared to believe that life is due to a chemical reaction, we must also admit waste products and substances resulting from degeneration of any kind whatsoever may react as chemical bodies with certain normal constituents of the individual or may exist in the free state as toxins in certain tissues or fluids and thus interfere with the function of vital organs. The rational procedure would be to remove the cause; i. e., prevent the degeneration of association tracts and other pathology in the brain; but since this involves the question of the inheritance of predispositions of determiners from our ancestors and returns to the gloomy prospects from social regulation, we must turn from it and await the accomplishments of future generations. Reluctantly we are forced to begin at the other end and endeavor to build a new man from the products which have caused his disintegration.

Granting the possibility of placing receptors in the blood, to combine with the toxins, the question arises, "how will this affect the source of the toxin, and will the degenerated brain substance continue to pour out its products, thus rendering necessary an indefinite continuance of the treatment?" It is possible that this and like questions may be answered during the course of this meeting.

Recently a few writers have indicated their ability to discover evidence of syphilis in dementia praecox by means of the Wassermann test and cell count of the spinal fluid. Further research along this line, especially with reference to the study of syphilis in children, may result in useful knowledge in this connection.

Our serologic work at the Independence State Hospital, though somewhat limited as to number of cases of dementia praecox tested by Wassermann, Noguchi's modification of the above test, cell counts, globulin, etc., carried out with the strictest observance of standard rules and formmulae, does not convince us that the spirochaeta pallida plays a part in the disease under discussion.

Of fifty cases of dementia praecox examined there were sixteen male hebephrenics and eight female, four male and six female catatonics, thirteen male and three female paranoids. Of these there was one positive globulin butyric acid test in a male hebephrenic.

There was no increase in the white cells of the spinal fluid in any of the cases. (Above three).

There was a positive Wassermann in the fluid. 2 mm. in one male catatonic.

There was a positive Wassermann of the blood serum in one female hebephrenic, .2mm and .1mm.

There was a positive Wassermann in blood serum of four male paranoids, .2mm and .1mm, also one female paranoid.

Fehling's test in these cases yielded nothing definite.

It is probably not unreasonable to presume that syphilis may exist in conjunction with this disease.

We will be far from the goal if we think that a hypodermic injection will cure dementia praecox. It is not so easy to regenerate diseased brain substance.

In the abstract, possibly the best treatment at our disposal today consists of free elimination by means of the prolonged warm bath and normal salt enemas. We have witnessed wonderful results from the use of normal salt used in this way, not only in dementia praecox but in other intoxications with excitement.

The symptoms of catatonia are frequently relieved promptly by this means, and where albumin occurs in the urine it rapidly disappears. Hypodermoclysis is of value in many cases, especially where there is marked cyanosis. Salt rubs are also of benefit in selected cases; the Scotch douche, electric light bath and direct sunlight in others.

The benefits derived from the psychic effect secured by the use of many of these mechanical appliances is not to be ignored.

Action! Action of mind and body, persistent and tiring should be the watchword in dementia of this character. It is therefore advisable in all hopeful cases to provide an intelligent, special nurse who has had training in this important subject, to teach the patient self reliance, self-control, and to separate him from his inclinations before the ego becomes too firmly fixed. Action! Training to develop new association tracts. He should be trained first to play games and to be sociable; to take interest in good reading—the biographies and memoirs of men who have risen beyond the constitutional restraints of the mind; to think and to do right. The moving picture may be made instructive and beneficial to this class.

Lastly, action in the form of useful employment.

The regularity of the baths, treatments, amusements, training, occupation and sleep; the sequence of all his endeavors being the foundation upon which his treatment must rest.

Medicines and tonics and eliminatives may be used to advantage, but hypnotics or sedatives, never.

At present much is being said of the advantageous use of certain extracts of glands, as thyroids, testicle, ovary, pituitary, supra-renal, etc. We are anxious to hear more of it.

Finally, the diet is important. No special articles of diet are demanded, the condition of the patient being the indicator. The function of the gastro-intestinal tract is changeable, and such food as agrees with the patient should be given. This should be selected with discretion. The idea of strictly vegetable or meat diet is absurd in the extreme. Infrequently it may be necessary to pass the stomach tube through the nose when patients refuse food for several consecutive days. Two quarts of milk and six eggs should be given daily, and when this treatment is of necessity continued for a considerable period, lemon juice one ounce, grain infusion and beef juice should be added.

---

## THE ABDERHALDEN REACTION IN DEMENTIA PRAECOX.

ALBERT E. STERNE, A. M., M. D.,

Professor Nervous and Mental Diseases. Indiana University School of Medicine. Ex-President Mississippi Valley Medical Association. Medical Director "Norways" Sanatorium, etc., etc.

INDIANAPOLIS, INDIANA.

For a number of years many internists, to whom should be counted neurologists and psychiatrists, have believed that some affections of the nervous system and conditions provoking faulty mental out-put, were exogenous in nature, i. e., extra-cerebral in origin.

As early as 1895 at the Baltimore meeting of the A. M. A. the writer delivered an address on "The Toxic Origin of Nervous Diseases"[1] and shortly afterwards published a paper on "Toxicity of Neurasthenia, Hysteria and Epilepsy."[2] During the almost 20 years since that time I have seen little cause to change the views then expressed, and have again and again emphasized the opinion that nervous and mental diseases are frequently caused by, or are visible expressions of, the effect upon the brain of certain toxins generated within the body, that is endogenous to the organism but not necessarily endogenous to the brain itself. There is nothing unique or remarkable about such an opinion, for every observant physician has noted, time and again, the effects of systemic empoisonment upon the brain and its functional expression, mind.

The fundamental pathology of many nervous-mental syndromes has long been regarded as basically toxic, and the actual organic demonstrable changes within the central nervous system and other body organs, have been properly looked upon as tissue reactions, secondary to longer or shorter existing toxemic states.

It is no new thing to construe the finer pathology, even of our best-studied psychosis, the tabo-paretic syphilid, as the morphologic equivalent of long-continued exogenous infection.

The clinical-neurological and mental manifestations of myxedema, cretinism, exopthalmic goitre, Addison's disease and various intoxica-

tions have long been recognized as non-cerebral in causation. It is small wonder then that the neurologic-psychiatric world has eagerly greeted the latest definite advances brought to scientific medicine by research in physiologic chemistry. We have been prepared by the splendid achievements of Ehrlich, Wasserman, Noguchi and others in Serology to become receptive to skilled laboratory interpretation of clinical phenomena, entirely divorced from mysticism and pseudo-psychology or the mantle of religion—so-called.

Since Abderhalden first promulgated his theory of "Abwehr fermente"[3] or protective body ferments and its practical application to diagnosis there has been a profound spread from its original field, the placental reaction of pregnancy. But two short years have elapsed since Abderhalden's epoch-making revelations and in that period investigations as to the value of his observations have been accumulating flood-wise. At the present time scientific Europe, especially Germany, is divided into two camps on the efficacy of the Abderhalden tests. The field of its application has broadened enormously. Cancer research has received decided stimulus under its influence and psychiatry bids fair to attain through its teachings an unexpectedly firmer basis diagnostically, prognostically and possibly therapeutically.

In this country, too, some work is being done, on the one hand to corroborate the finding of Abderhalden, Fauser, Wegener, Kafke and others abroad and, on the other, to widen the scope of its utility.

In a matter of so very great importance it were well to temper enthusiasm with judgment and critical analysis. The doctrine of protective ferments strikes an exceedingly sympathetic chord. It meets adequately, more than any other, it seems to me, the ideas we have all vaguely been entertaining for many years and, coming as it does on top of the recent advances in the diagnosis and treatment of syphilis, we are ultra-receptive and apt to be carried off our intellectual feet by too sanguine expectations and faulty interpretations of tests by persons wholly or ill-prepared to make such elaborate tests.

The limits of this paper preclude any exhaustive résumé of the work already done in the application of Abderhalden's reaction to psychiatry, notably dementia praecox, nor is it safe to criticize all of the published reports in the absence of specific knowledge as to the technic employed by the various observers. In the very nature of things we must await rather conflicting revelations, for no small number of enthusiastic persons, who may deem themselves competent serologists, are going to rush into print with their experiences, unmindful of the fact that a method so elaborate, so delicate, so surgically "nice" must be free from every technical fault, if it serves to prove anything at all.

It requires very much more than the care of an ordinary chemist or even a serologist. Perfect understanding of the principles underlying Abderhalden's ideas, backed up by faultless materials, faultless apparatus, faultless dialysers, absolutely clean instruments, hands and gloves in a laboratory as aseptic as a modern operating room and undivided, patient technical skill are pre-requisite and essential to the final reliability of the results. It is perfectly safe to assert that the further development of this method should rest in the hands of the best physiologic chemists rather than in those of serologists, unless the latter be exceptionally well-equipped for such work, not only as to laboratory facilities, but also in practical skill.

Furthermore, really accurate clinical observation and data should be associated with the laboratory work. The temptation to make clinical and bedside work "fit in" with laboratory findings, regardless of their accuracy, lies very close.

Looking back over the period during which the Abderhalden dialysis reaction has found practical application in Psychiatry we find Fauser[4] pointing the way. In May, 1913, he announced his conclusions at the meeting of the German Psychiatric Association based upon the examination of 250 cases showing clinical evidence of various psychoses, claiming to have definitely established a positive dialysis reaction with sex glands in dementia praecox only, no other form of mental affection revealing a like result. Moreover, male patients reacted only with antigen from testicle and female with ovarian antigen only. The sera of patients other than those suffering from clinical dementia praecox gave negative reactions quoad sex gland antigen alone, but positive tests were established with substrates from brain cortex and thyroids in several forms of mental disease.

In dementia praecox also positive protective ferments were noted with brain cortex and thyroid; cleavage of brain cortex being especially noticeable in well-advanced cases of dementia praecox. Fauser's later reports indicate that he still substantially holds the following view—that patients suffering from clinical signs of dementia praecox give positive dialysis reactions to their respective sex gland antigen as a rule; that they frequently also give positive nihydrin tests with thyroid antigen and, in the later stages of the disease, with brain cortex antigen as well. Occasionally cases clinically warranting the diagnosis dementia praecox, failed to react positively with sex gland substrate, but gave positive results with thyroid and brain cortex or both. These patients showed evident enlargement of the thyroid gland.

In paresis, so-called, he finds protective ferment in the serum with brain cortex uniformly, but none for sex-gland, and often positive evidence of the presence of ferments for liver and kidney.

In certain psychoses classed as functional, notably manic-depressive and hysteroid, no sera ferments with any organ antigen were established.

Following Fauser comes a no small number of reports from other quarters. Wegener[5] gives an elaborate record of several hundred cases; his experience is, in brief: Negative results to the Abderhalden test were constant in simple hysteria, the manic-depressive group and chronic paranoia. In 25 cases of the depressed (melancholy) type, cleavage of liver was found and sometimes sex gland, but these cases he is inclined to consider as of the dementia praecox type, clinically obscured by depression. In epilepsy (61 cases) positive ferment reaction was found immediately consequent to seizures, and also between attacks in cases which had progressed to dementia, with brain cortex fundament. In multiple sclerosis (8 cases), senile dementia due to arterial changes (12), chorea (6), brain and spinal tumors (15), alcoholism (8), paralysis agitans (1), meningitis (10), the tabo-paretic syphilid (67) and after narcosis (8) there were demonstrable positive reactions with brain cortex.

Wegener divides his dementia praecox cases into (a) simple, (b) with Katatonia (c) with definite deterioration (i. e. real dementia praecox). He observed positive sex-gland reaction in all cases (229); in simple hebephrenia (121) cases, sex-gland cleavage only; with Katatonia (12 cases) thyroid plus sex-gland; in cases (96) showing deterioration of brain cortex cleavage in additon to sex-gland was noted. Wegener concludes that his observations fully substantiate the findings of Fauser.

Confirmatory reports emanate also from Mayer[6] with 47 cases, Fisher[7] (24 cases), Roemer and Bundschu[8] (36 cases), Kafka[9] (100), Beyer[10] (6 cases), Theobald[11] (sex-gland 53 per cent., cortex 63 per cent., thyroid 69 per cent. in dementia praecox), Fuchs and Freund[12] (23 cases tested with sex gland and pancreas). Of these 6 manic-depressive gave feeble reactions; of 12 dementia praecox all positive with pancreas and 11 with sex gland 1 being negative; of paresis (7 cases) five gave pancreas reaction. The consensus of opinion of the above observations supports Fauser's claims.

Other investigators, among whom may be mentioned Willige[13] of Halle, Allers[14] of Munich, Neue[15] of Greifswald, Hauptmann & Bumke[16] of Freiburg, have been unable fully to substantiate the findings of Fauser, even in some instances disputing the correctness of his observations, notably in dementia praecox, but every one of them found positive evidence of cleavage products in some form with substrate of brain cortex, thyroid, sex gland, hypophysis, body organs, thus supporting Abderhalden's original concepts, but not establishing, beyond question, the dictum of Fauser that sex gland cleavage was pathognomonic of dementia praecox alone. In fact, positive dialysis with sex gland was determined in several instances of paretic syphilis, cerebral arteriosclerosis, epilepsy and even in perfectly normal healthy male attendants (7 out of 9 with testicle, thyroid and pancreas by Neue in Schroeder's Clinic at Greifswald).

Willige records 2 positive reactions with hypophysis in 2 cases of hypophyseal tumor, and one of brain tumor which reacted with thyroid but not with brain.

In this country undoubtedly several foci of observation are established or are being established.

As yet, so far as I know, none of the leading institutes of research, like the Rockefeller, are conducting any experiments along this line. A

recent letter from the Rockefeller informs me that no effort has yet been made there to prove or disprove the validity of Abderhalden and Fauser's contentions.

Doubtless in several of our psychopathic institutions and in the research departments of some hospitals and schools Abderhalden tests are being carried out. Some commercial laboratories are advertising their preparedness to do this work. Individually quite a number of reports have made their appearance in medical journals. Among the most active and earnest workers in this country must be rated Bayard Holmes,[17] probably better versed in the understanding and technic of Abderhalden's ideas than anyone in the United States. His articles upon this subject are exceedingly clear and illuminating. They deserve the most careful critical attention, even though he does not report any series of cases in detail.

The latest contribution to the literature of the Abderhalden test in psychiatry with special reference to Fauser's claims is that of Simon,[18] who records his observations from the laboratory of Clinical Pathology at the College of Physicians and Surgeons of Baltimore with material from the Sheppard and Enoch Pratt Hospital, in all 106 cases, tested against sex gland, Basedow thyroid and cortex with a carefully detailed description of the technique followed.

A summary of Simon's conclusion is substantially this: Sex gland reaction may be obtained in nearly, if not all, cases of dementia praecox at some stage of the disease, but the reaction is not specific of dementia praecox, as Fauser contends. He found no sex-gland reaction in paretic syphilis, but he did observe positive results with sex gland substrate in 4 out of 25 cases of manic-depressive, 2 out of 10 cases of involutional depression, 2 out of 4 cases of constitutional psychopathic states, 2 out of 2 cases of toxic (nephritic) psychoses and 4 out of 5 alcoholic intoxications. In 10 out of 15 conditions designated "doubtful diagnosis" sex gland cleavage was positive. However, Simon, like all other investigators, found the most substantial support for the Abderhalden theory in itself and could emphasize the conclusion that "in dementia praecox a positive reaction is the rule and that in the purely functional psychoses it is the exception," which certainly lends additional evidence to the original Fauser claim, namely, that there lies a definite specificity in the Abderhalden test or reaction for dementia praecox, with a substrate of the respective sex gland, the testicle for the male serum, the ovary for the female serum and that no such specific reaction occurs in other phychoses.

That the teachings of Abderhalden are certain to have an important bearing upon scientific medicine there can be scarcely any doubt. Not alone is this true from the diagnostic and differential diagnostic view point but the prognosis of any given case seems to stand in close relationship to the character of a postive reaction and its degree of intensity. In conditions giving positive evidence of cleavage with brain cortex fundament or substrate, as shown by the presence of peptone and amino-acid in the dialysate with serum from any given patient the prognosis becomes definitely worse. In cases in which brain cortex digestion is absent, the outlook may yet be regarded as hopeful—provided that out of the Abderhalden doctrine some appropriate therapy shall arise. (Bruse, Dide, Donath and others have reported cures or improvement through induced hyperleucocytosis.)

Comes now Halvar Lundvall[19] of Lund, Sweden, with a remedy composed largely of nuclein with a little arsenic and some sodium cinnamate prepared for deep injection and designed to induce leucocytosis. Lundvall reports apparent cures in dementia praecox, and remarkable improvement in seemingly hopeless cases, but the time which has elapsed since his injection treatment has been in use is too short to predicate the end result. Dr. Holmes will doubtless tell us more of this. Its employment appeals to me as rational in relation to the condition of the blood of dementia praecox patients as observed by Lundvall (i. e., polycythemia and leukopenia when patient is failing, and hyperleucocytosis with normal number of red corpuscles when patient is improving), but whether the disfunction of the various glands involved, or any actual pathology of such glands, if it exists, can thereby be permanently affected or relieved remains a problem for future solution.

The whole Abderhalden Lehre presents a deeply interesting study. It opens up a number of absorbingly elementary questions, the answers to which involve profound consideration. Its possibilities are many, its practical application may

and probably will prove a great advance in scientific medicine, more far-reaching than the work Ehrlich has bequeathed to us. It brings strikingly into the foreground the necessities of present-day medical requirement, the fine distinction between the skillful, learned diagnostician and the haphazard practitioner. It emphasizes the already well-marked passing-away of inexact, inaccurate work and teaching, the great need of co-operation between skilled, trained laboratory workers and careful, accurate, keen clinical diagnosticians.

Scientific medicine of today requires much more than a loose connection between clinician and laboratorian and, furthermore, it requires laboratory equipment and knowledge of the highest order. The ordinary laboratory with comparatively inexperienced chemists, serologists and hematologists who may do very conscientious, but inaccurate, work will not merit our confidence. Some of the commercial laboratories seem to be well-equipped and well-conducted, but just how accurate and scrupulously scientific their work is, remains a matter of doubt. The returns from some tests may be perfectly trustworthy, but the confidence of the clinician must assuredly be shaken when reports from different laboratories upon like specimens are conflicting. At the present most internists and surgeons and all physicians in ordinary active practice are compelled to rely upon the report of laboratorians with whom they have no close relations, of whose technical skill and unfailing care they have no certain knowledge and yet whose dictum they perforce blindly follow, sometimes to the detriment of their patients, more often probably to their advantage. The wise clinician exercises a certain control over the laboratory reports he receives and displays good judgment when he carefully weighs the laboratory returns in the light of his clinical experience and diagnostic acumen. And yet the very best internist must give heed to the dictum of his laboratorian even though he finds it difficult, often, to reconcile the laboratory report with his bedside or other observation in any particular case. Some private laboratories are skillfully conducted, but the ordinary one, except for simple tissue and blood and urinary examinations, is a farce. The same thing may well be said of the general run of corporate, municipal, institutional, State and, often enough, hospital laboratories when it comes to the more complicated tests, such as the Wassermann, where sources of error are common and where so much depends upon accuracy. What then may we expect from the Abderhalden!

In reality this test may be no more difficult to carry out than that of complement fixation, but the sources of possible error are many and some, apparently trivial in themselves, utterly nihilistic of accuracy in effect.

Careful study of the accumulated Abderhalden literature to date, given forth by acknowledged, capable, experienced clinicians, reveals doubtful laboratory research and one cannot but be impressed with the thought that ere absolutely reliable data can be acquired upon this most important advance in scientific medicine, the laboratories upon which the burden of proof must lie shall measure up favorably to the high standard of the institution of research, whence they originally emanated to meet the full force of analytic scrutiny.

BIBLIOGRAPHY.


1. Sterne, A. E.; Toxic Origin of Nervous Dis. Jour. A. M. A., 1895.
2. Sterne, A. E.: Toxicity in Neurasthenia, Hysteria and Epilepsy. Indiana Med. J., 1895.
3. Abderhalden, Emil; Abwehrfermente des Tierischen Organismus, 3rd Edition, Berlin, 1913. 8 vo.
4. Fauser, A.: Pathol-Serolog Befunde C. Geisteskr. auf Grund D. Abderhaldischen Anshau U. Method, Allg. Zeitsch. f. Psych., 1913, lxx, 719; Deutsch, Med. Wochen., Dec. 26, 1912, Feb. 13, 1913; Munchen. Med. Wochen., Mar. 18, 1913.
5. Wegener, E.: Serodiag. N. Aberhalden in der Psych. Munchen. Med. Wochen., 1913, p. 1197; ibid. Jan. 6, 1914, p. 15.
6. Mayer, W.: Bedeutung der Abderhalden Serodiag., f. d. Psych.: Munchen. Med. Wochen., Sept. 16, 1913.
7. Fisher, J.: (Abs.) Zeitsch. f. d. ges. Neurol. u. Psych., 1913, vll, 559.
8. Römer u. Bundschuh: (Abs.) Zeitsch. f. d. ges. Neurol. u. Psych., 1913, vll, 564.
9. Kafka, V.: Ueber d. Nachw. Abwehrferment i. Blutserumv. Geisteskr. Zeisch. f. ges. Neurol. u. Psych., 1913, xvll, 341.
10. Beyer, B.: Munchen. Med. Wochen., Nov. 4, 1913.
11. Theobald, M.: Berlin. Clin. Wochen., Nov. 24, 1913.
12. Fuchs u. Freund: Munchen. Med. Wochen., Feb. 10, 1914.
13. Willige: Munchen. Med. Wochen., 1914, p. 565.
14. Allers: Munchen. Med. Wochen., Jan. 6, 1914, p. 13 (cit.).
15. Neue (Abs.) Zeitsch f. d. ges. Neurol. u. Psych., 1913, p. 564.
16. Hauptmann u. Bumke: Munchen. Med. Wochen., 1914, p. 566.
17. Holmes, Bayard: Equipment and Technique of the Abderhalden Method. Chicago Med. Recorder, Apr., 1914. Diag. and Treatment of dem. praecox. Amer. Med. Jour. of Clin. Med., May, 1914. Abderhalden reaction in Psych. N. Y. Med. Jour., March 21, 1914. "Non-Mental" Condition of dem. praecox. Lancet-Clinic, Jan. 17, 1914.
18. Simon, C. E.: The Abderhalden-Fauser Reaction in Mental Dis. Jour. A. M. A., May 30, 1914.
19. Lundvall, H.: Cit. Holmes, B. Amer. Jour. of Clin. Med., May, 1914.


NOTE.—Since the above was written, there has appeared a complete bibliography of the Aberhalden Reaction, compiled by Dr. Bayard Holmes, of Chicago, in the Index of Oto-Laryngology, May, 1914. This list is entirely too long for reproduction here and the reader is referred to this valuable contribution of the entire Abderhalden doctrine.

# THE DIAGNOSIS AND TREATMENT OF DEMENTIA PRAECOX, AS EXHIBITED BY THE EXPERIENCE OF THE LAST TWO YEARS.

BAYARD HOLMES, M. D.,
CHICAGO, ILLINOIS.

Dementia praecox is a condition of very unusual and bizarre symptoms. Cases of this disease verge all the way between the most pronounced and easily recognized catatonias to the most subtle and hardly distinguishable paranoiacs. At times it so resembles general paresis that one is tempted to pronounce it of syphilitic origin without any serelogic or other tests. In other cases it is so subtle and deceptive that it might readily be mistaken for a hysteria or a manic-depressive. The larger one's experience goes and the more careful his study of the early and the late manifestations, the less satisfied he is with any symptomatic or clinical diagnosis.

It is noticeable that Kraepelin has held to his original group, but that during the past year or two he has subdivided this group into many sub-groups that have perhaps clinical value, and will in the end give some clinical statistics helpful in prognosis and possibly in treatment. The question of the entity of dementia praecox as a pathological proposition has been greatly simplified during the past two years by the study of the blood both from its morphologic and its chemical nature. The study of the cell elements of the blood has developed the fact that in all cases of dementia praecox there is a period or a succession of periods in which the red cells are enormously increased, running all the way from 5,500,000 to 8,000,000; while at the same time the relative number of the white blood corpuscles is diminished even below the absolute number of a healthy individual; thus, when the red count is 7,500,000, the white count is frequently below 8,000, and in one instance in my own experience a red count of 6,000,000 was attended for more than six weeks with a white count between 4,000 and 6,000. Such a pronounced relative leucopenia is certainly inconsistent with health. This count was made upon a patient who was under the most ideal sanitary conditions. He was well fed, his elimination was carefully attended to and he was given large quantities of liquid food with the purpose of diminishing the concentration of his blood and eliminating the coincident cyanosis and catatonia.

The early studies of the blood in various conditions of institutional cases showed that the fluctuations which are so common in cases of dementia praecox were preceded by an increase in the number of leucocytes. Upon these observations Bruce made extensive studies, and many of his school have attempted to make a prognosis by the presence of leucocytosis or leucopenia.

It is extremely unfortunate that the study of the morphologic elements of the blood have not been coordinated with studies in the spectroscopy of the blood, especially the presence or absence of the sulph-hemoglobin and the other methemoglobins. It is still important to make these studies since the great significance of sulphhemoglobinemia in its relation to the colon bacillus septicemia.

The concentration of the blood is sometimes attended by an absolute diminution in its quantity. Studies in relation to the absolute quantity of the blood in dementia praecox have not, so far as I know, been made to co-ordinate with the number of the morphologic elements. There are some reasons to believe that the absolute quantity of blood is diminished in dementia praecox, and that the cyanosis is in some manner related to the diminished quantity and the diminished fluidity of the blood, resulting from a sort of dehydration.

From a diagnostic standpoint, the application of the defensive ferment reactions of Abderhalden have been the most interesting contribution to our knowledge of this condition. For the first time we are able to state positively that dementia praecox is a symptom of some disease, and that this disease or these diseases are of a toxic nature, and that the toxic condition of the blood is attended by a destructive process in various organs of the body. In December, 1912, Fauser published his first paper on the study of the defensive ferments of 84 healthy persons and insane patients, and he showed that in the cases of manic-depressive insanity and healthy persons defensive ferments were rarely recognized for any organ of the body, that in cases of dementia praecox defensive ferments were almost uniformly discovered in the blood serum against the

albumin of the testicle or the ovary, against the cerebral cortex, and in many cases against the thyroid or other glands of internal secretion, and that this was the case even in very old women and very old men in whom the natural functions of the genital glands might be supposed to have come to an end. In his succeeding paper, published in February, 1913, this work was still further carried on, and a theory of the dysfunktion of the genital glands as a source of the toxemia was added. We are not at all interested in the theories of the cause of dementia praecox at this time, but only in regard to the assumed and asserted fact that the defensive ferment reaction is diagnostic of this condition. We would call attention to the examination of 600 patients and healthy persons by Wegener, of Jena, where Fauser's methods were carried out on a larger scale with practically identical results, and also a long series of examinations of the same sort in the psychiatric clinics of Germany and Austria. It is useless to refer to them here, and they may be looked up by anyone interested in the subject. It is not, perhaps, undesirable, however, to refer to the latest papers of Kastan, of Koenigsberg; Kafka, of Hamburg; Plaut, of Munich and Hilfert and Rosental, of Heidelberg, presented before the recent meeting of psychiatrists at Strassburg, in May, 1914. Kastan's paper is largely devoted to the study of the significance of the reactions for the defective ferments, which he shows to be present in practically all cases of dementia praecox, against the genital glands and in severe cases the cerebral cortex, the thyroid and the adrenal tissue. He looks uopn the picture as presented by the Abderhalden reaction as very suggestive of dietetic, medicinal and physical treatment, including x-rays, sunlight, and applications of heat. Kafka, who had previously published a very long series of articles from the Hamburg-Friedrichsburg clinic, both upon the experiments on animals and the sources of technical error, reiterates the necessity of following out without any deviation the original methods of Abderhalden, and protecting the laboratory from errors by frequent and rigid testing out of the dialyzers and the invariable proving of the fundaments before each and every examination. He recounts in his paper the results of four hundred examinations for diagnostic purposes. Among these were 114 cases of dementia praecox, 18 of manic-depressive insanity, 20 of other psychopathies, 17 of general paresis, 5 of other forms of cerebral syphilis, 17 of genuine epilepsy, 5 of senile psychosis, and a considerable number of other organic diseases of the central nervous system. In all of these there was some catabolism of the glands of internal secretion recognized by the presence of their defensive ferments in the blood. In 27 healthy persons only one showed any catabolism for brain cortex, none for the genital gland, none for the thyroid, none for the adrenal, and none for the spleen. The cases of dementia praecox, 114 in number, all gave the reaction to the sexual glands, 79 per cent to the cerebral cortex or some other part of the brain, 40 per cent to the thyroid, and 25 per cent to the adrenal gland. Many of these cases gave reactions to several of the albumins of the glands of the internal secretions. In the 18 cases of manic-depressive insanity there was a catabolism of brain cortex in 9 cases, of the sexual glands in absolutely no case, and the adrenal gland in 4 cases; the thyroid in one case. It is not consistent with our purpose to go on and give a further account of his very valuable research, except to say that he urges the most careful technique in making these examinations, and the use of as large a number of fundaments as possible. We note, however, that Kafka does not use in his cases of insanity fundaments made from the organs connected with the digestive tract, and we believe that this is a decided error, because Wegener, Rundschauch, Römer, Deutsch, and Kastan have found that the pancreas was frequently disturbed in cases of dementia praecox. In my own examinations of dementia praecox serum the fundament of the pancreas has been positive every time. Plaut, of Munich, looks upon the reaction as absolutely useless and he quotes very liberally from the criticisms of the method made by Michaelis, who has alone criticized the Abderhalden theory and the Abderhalden method from the standpoint of a peer. He mentions in his discussion the fact that he has had sera examined by Fauser and by Kafka and by Lampé, besides 65 cases examined in his own laboratory, and that he failed to get one hundred per cent of positive reactions to the genital glands in dementia praecox and one hundred per cent of negative reactions to the genital glands in manic-depressive insanity. To me,

it seems that the discussion of Plaut may be very helpful in holding the enthusiasts of this reaction to the ground, but it is irrelevant, and the meager reports which he made on fifteen cases do not seem to me to indicate anything but loose, inaccurate methods, with very many errors, which can almost be pointed out from the printed page alone. Taking the work of Kischberg, Hilfert and Rosental together, we may say that there are no defensive ferments in 97 per cent of healthy individuals, as they come to the laboratory to give blood for controls, and that in the three per cent that show positive reactions, there are all the chances of error which the presence of peptone in the blood serum and the accidents of the laboratory furnish. This would probably reduce the number of persons actually harboring defensive ferments in their blood to less than one and a half per cent. Now, in the cases of manic-depressive insanity half, at least, furnish no positive reaction to any one of nineteen fundaments or the genital glands. This must, of course, be looked upon as conclusive of the value of the defensive ferment reaction, when we consider that in only three per cent of all cases of dementia praecox examined by Fauser, Wegener, Deutsch, Kafka, Römer, Rundschauh, Neue, Fischer, Hilfert, Rosental and Kirschberg there has been failure to show reaction to the genital glands; to the ovary in females, to the testicles in males.

Our experience with the Abderhalden reaction in the two other directions in which it has been used for diagnostic purposes, namely, in obstetrics and in malignant disease, teaches us that a time comes in the supersaturation of the blood with the toxic elements of the disease or the condition when the blood fails any longer to furnish a defensive ferment; in other words, it is overcome. Abderhalden has recently shown by experiments upon animals that this supersaturation is readily produced in animals by the repeated injection of increasing doses of the foreign or toxic albumin. It would not seem unlikely, then, that many patients with this disease which we term dementia praecox would be so over-poisoned by the toxin that the blood would be unable to any longer furnish a quantity of defensive ferment sufficient for a diagnosis, but such cases have not so far been reported.

It has been noted, especially during the last two years, that an increasing number of dementia praecox cases recover, and the evidence is of long standing that recovery in these cases is preceded by an attack of some serious acute infection or some protracted chronic pus microbe disease. It has also been noticed by a large number of students of the morphology of the blood, beginning with Didé and Bruce, that improvements in the condition of dementia praecox cases, as well as other cases of insanity, are preceded by a hyperleucocytosis. Halvar Lundvall, of Sweden, studied with the greatest care the morphologic elements of the blood in cases of dementia praecox, and established the fact that there was a blood crisis attending or immediately preceding every case of improvement, in which the concentration of the blood was diminished, the red blood corpuscles fell from far above normal to somewhere near normal, and the white corpuscles rose from about the normal to a point considerably above the normal.

Lundvall conceived the idea, which seems perfectly rational under the circumstances, of producing artificially a hyperleucocytosis, with the purpose of bringing about an improvement, the same as if it had resulted spontaneously or from the effect of a suppurative disease. For many years the effort to imitate the acute infectious diseases in this matter has been tried out, but without much success. Hyperthemia was used, the injection of irritating substances like turpentine, and the application of caustics, escarotics and blisters. From these methods even some cases of betterment or recovery have been reported, but they have generally been looked upon as in the first instance errors of diagnosis and, on the other hand, spontaneous recoveries of a temporary nature so incidental to this disease. Taking up the use of subcutaneous injections of the nucleates and of hetol, which had been tried out especially in general paresis, Lundvall contrived a remedy consisting of the nucleate of soda, hetol, arsenious acid and quassine. With this remedy in January, 1913, he reported the treatment of eighteen patients, six of whom recovered and all but three made commendable improvement.

Donath, Heubner, Ittan and others have made similar experiments with the nucleates and have found that they were uniformly productive of a

hyperleucocytosis and that some patients made temporary and some permanent improvement.

We must admit that as long as we are ignorant of the cause, the etiology and anything but the barest hint at the pathology of dementia praecox, it is hopeless to secure any general and reliable treatment, but the fact that practically all organic repair in the human body is attended by a leucocytosis and even a hyperleucocytosis, that it is not irrational until research has demonstrated a better way to employ such means as we have in increasing the reparative morphologic elements of the blood. We knod that the leucocytes are increased by exposure to the light, the air and to rapid changes of temperature and we have observed with the greatest satisfaction the remarkable cures from the exposure of tuberculous patients to these conditions, especially the cases of bone tuberculosis in Rollier's sanitarium. It does not seem unreasonable then to credit the reports which have been given of betterment in cases of dementia praecox to the subcutaneous injection of the neucleates, the exposure of the patients to light and air and the careful coaxing of all of the eliminative organs of the body.

Commencing less than a year ago, I have advocated the use of the nucleates of soda, as recommended by Lundvall,* the exposure of the patient to light and air and the improvement in all excretory organs, as a treatment of this disease. My disappointment has been very great that so few physicians having these cases in hand have been willing to undertake this novel method and that when it has been undertaken it has been done fitfully and without any continuous purposeful study and application. My astonishment has been great that the difficulty of securing blood examinations has been almost prohibitory to the use of the remedy. My directions have been that after the blood count is made a dose of the Lundvall remedy of one to twenty cubic centimeters be injected subcutaneously, the size of the dose depending upon the reaction. The dose should be large enough to raise the leucocytes to twenty or thirty thousand, and it should be repeated often enough to keep the leucocytes above the fifteen thousand mark. In many towns in the United States of a population of one to five thousand it has been impossible to secure a regular blood count, and thus parents who have been eager to use the remedy upon patients kept at home, under favorable surroundings, have been unable to do so. Up to the present time I have no reports to make, except to say that in every case where the remedy has been used it has produced a hyperleucocytosis, and the patient has gained in weight. No trial of this remedy can be considered of any significance unless it is used for a period equally, at least one-third, the duration of the disease previous to the beginning of the treatment.

*The remedy can be prepared by any careful pharmacist, but it is a technical procedure. Mr. L. Breckwoldt of Sargent's Drug Store has made the remedy from Lundvall's manuscript directions, viz.:

R

| | |
|---|---|
| Quassin. depur. sicc., "Merck's," | 2.0- |
| Aqua. distill., | 50.0- |

Boil on water bath for one-half hour, filter, and add:

| | |
|---|---|
| Natr. Nuclein, | 10.0- |
| Hetol. (Sod. Cinnamate), | 1.0. |
| Acid Arsen | 0.005. |
| Boil, filter and obtain | 50. c.c. |

Give 1-2 c.c. to 15-20 c.c. and repeat when the leucocytes fall below 12,000.

Leonard Breckwoldt, R. Ph.

## PRECAUTIONS AND LIMITATIONS OF THE ABDERHALDEN METHOD IN THE EXAMINATION OF MENTAL CASES.

ADOLPH GEHRMANN, M. D.,
CHICAGO.

There has been great interest in the findings of Abderhalden, in which it was shown that ferments were developed in the blood of individuals. These are capable of acting either as specific principles or immune bodies having digestive dissolving action upon different kinds of albumins or tissue structure. The examination of the blood of individuals has been very enthusiastically carried out without giving sufficient detail to the procedures that are necessarily involved. In every reaction that is as complicated as that of Abderhalden, each worker must develop a certain technic which is the result of adaptation to his views and resources. Here, as in other diagnostic tests of a similar character the limits of the reaction must be recognized and it is necessary that they be carefully interpreted.

For practical purposes it is my intention to discuss the technic and not to go into a consideration of the results of applying serum to different organ tissues. Some of the points that may be considered are the conditions in the patient, the conditions in the serum, the tissues

used, the details of the test, the conduct of the test, and the reading of the results.

*Conditions in the Patient.*—If the presence of the ferments in the blood is an evidence of immunity and has depended upon the presence of foreign cell particles that have gotten into the circulation more or less accidentally, it will be subject to the variations of similar methods of protection. De Waele finds that the injection of peptones or amino-acids within a few minutes leads to the presence of ferments that will act on the albumins from which these bodies were derived. Feeding experiments give rise to the same results and these two observations make it clear that extraneous reactions must be guarded against by placing the patient under strict control for some time before taking a blood specimen. The patient must be starved until extraneous proteid factors are certainly removed and the serum not likely to contain any except the specific ferment itself. The danger from autolysis of any kind having occurred in the patient just before the blood specimen is taken, is one of the chief points to be guarded against. Further, as regards the patient, the question as to the quantitative bearing of the reaction is far from being settled. Are there any normal reactions that we can expect, or are there in individuals conditions other than those for which we are looking that give rise to digestive ferments in the blood? If this is the case, there may be a certain degree of reaction that may be considered as normal and should be taken into account in a final reading. At what point shall the positive reactions begin as relates to the patient? And shall the reactions that occur late with the patient's blood, say after standing forty-eight or sixty hours, be considered as a specific reaction?

It would seem to me that the quantitative condition will have to be fulfilled in this test to cover certain degrees of normal reaction and of reaction occurring from causes other than those for which the test is actually being made and observers will have to recognize in the patient these possibilities in drawing a final conclusion as to positive or negative reactions with any given tissue substratum.

*Conditions in the Serum.*—The blood specimen should be drawn where the test is made and at once centrifuged and put on ice. All aseptic precautions must be used. Singer, Heilners, Petris and others have found that the resorption or injection of an animal's own serum gives rise to the presence of different defensive ferments having the property of digesting the albumins from the different organs. The absolute specific nature of these ferments is on this account brought into doubt. On the other hand, Hirsch reports animal experiments in which the production of specific ferments for placenta and uterus were developed by intravenous injections of emulsions of these tissues. Whether the ferments are derived from the intestinal secreting glands or are formed in the circulation is in dispute. At any rate, as the digestion of tissues seems to be a group reaction, the serum must be free from extraneous possibilities if it is at all possible to make it so. Therefore, all cells should be removed as quickly as possible, and there should be no chance for autolysis of any of the constituent cells to occur. This can alone be accomplished by details in the obtaining of the serum and its preservation before setting up the test. Not enough attention has been given to the complement condition of the serum. In general the hurry to make a test does not allow of time to fully consider such details and it is possible that with some tissues the test made with complement-bearing or with inactiviated serum will give different results. Of all the control steps in the technic, the experiment with serum alone is the most vital. There must be no doubt of this control and it is therefore essential that the blood specimen be again properly drawn and handled as a preliminary requisite.

*The Tissues Used.*—Much study has been put upon the tissue substratum, which must be free from decompositon and free from blood. It is only the proteid part that is of use in the test. The use of normal tissue and of pathologic tissue has been apparently quite indiscriminate by most workers. To me it is a question of whether we should accept experiments with pathologic tissue when we are looking for a condition which will act upon normal tissue itself or the reverse. The preparation of the tissue requires painstaking care. Here Abderhalden's instructions must be followed. Long and frequent washing and frequent boiling are necessary to free the pieces from extraneous errors. When properly prepared, they can be kept on hand for use.

Ollier and Stephan, from an experience of

about 3,000 tests, believe that in each case a number of different substrate tissues should be used. They are further of the opinion that the clearly positive and clearly negative tests should be considered and that doubtful reactions do not count. This is one of the most difficult points in the experiment, and every worker must admit that there are constantly appearing doubtful or intermediate reactions.

*Details of the Test.*—The dialyzation principle in the Abderhalden test has withstood attacks from many angles. Whatever there is in failure that may be attributed to technic, should be divided equally between one method and the others. The success in the experiment rests in the exact control of the details of the test. Every step must be carefully guarded against error. Of all the details of the original Abderhalden, the testing of the dialyzers has given the most trouble. One cannot be certain of their integrity, and the experiments should therefore be made in duplicate or triplicate in order to be certain without repeating the experiment. There is much variation in the permeability of the dialyzer tubes. Permeability changes with sterilization and the sacs are injured. Swart and Terwen recommend testing by a solution of casein in the dialyzers, testing water outside by underlying with sulphuric acid. The dialyzers must certainly prevent the passage of albumins and must as easily allow the passage of peptones and albumin derivatives. The cleaning and sterilization of dialyzers is uncertain. Shall they be sterilized at all, or shall we depend upon asepsis or antisepsis alone? It is recommended by Simon and others not to sterilize the dialyzer sacs at all.

*Setting up to the Test.*—In the test there is an open question as to the amount of serum to use and how it shall be diluted; also how much water shall be placed outside of the capsules. Further, as to how much tissue shall be used. I believe most workers are using from .5 to 1 c.c. of serum rather than larger amounts, and making more tests or duplicates and controls than was at first the practice and was thought necessary by Abderhalden himself. The essential part of the tissue substratum alone is necessary, and this must be perfectly coagulated. Sometimes, as in brain tissue, it is hard to get it to hold together. A number of methods have been proposed to overcome the difficulties of dialyzation. The optical methods shows amino-acids by polarization. It is used as a control for the dialyzers. The practical testing of digestive products by the biurate reaction is generally considered not satisfactory, but may be used in a limited way also as a control. Plaut has tried inert material and barium sulphate, talcum, or filter stone with the serum alone, and found the presence of ninhydrin reacting material in the dialysate. In this experiment it is thought the ferments digest albumin in the serum itself, and this should not be forgotten as a precaution and be recognized in those tests and serum, and then precipitates albumin and peptones with ferric hydrate and tests the supernatant liquid for amino-acids by the ninhydrate method. Dr. Fischer in our laboratory has tried the method of coloring the tissues with stains until they are thoroughly stained and fixed and will not give off color after repeated boiling. Such tissues upon being digested with serum that is active dissolve in part and release the color. The reaction made in this way so far has not been absolutely reliable.

*Conducting the Test.*—The temperature at which the digestion is to be conducted has been studied by every experimenter. Neither temperatur nor time has been standardized, and this will be found more or less at variation in the literature and probably gives rise to variations in the results. Some uniformity should be recognized in these conditions for a standard working procedure.

As regards the prevention of bacterial growth, great care must be used, and the use of chemicals or preservatives is worthy of special consideration. Toluol is very generally used. De Waele recommends chloroton with thymol, and says that thymol has never interfered with tests in his hands. However, strict asepsis is the best way to avoid contamination, or at least to reduce it to a minimum.

Should the specimen be shaken during the period of digestion, is another point. The digestive products and ferments are very small in amount and moderate agitation should facilitate their separation and passage through the dialyzer.

*Interpreting the Reaction.*—Finally, we must give the ninhydrin reaction some consideration. It is a remarkable reagent in its color reaction with amino-acids and aminolike bodies. Its color reaction is distinct and varies in intensity

with the amount and time of application. Ninhydrin also reacts with gluco-samin bodies. Dietjen and Fraenkel believe that such may at times be formed from connective tissue. We have seen the reaction frequently enough with glucose, but do not think that this observation is sufficient to reflect in a detrimental way upon the reading for amino-acids. The application of ninhydrin is a simple part of the experiment, but the question is as to whether a distinct coloration should be demanded, or whether we should look upon the slight and variable shades of coloration that sometimes appear as being worthy of consideration in drawing conclusions is not so very easily decided. It would seem that unless a sufficient amount of amino-body is present to give a distinct and clear coloration with ninhydrin, the results should be considered as negative.

DISCUSSION.

Dr. Gehrmann: I have asked Dr. Fisher to make a demonstration of the principal points.

## DEMONSTRATION OF THE TEST.

CHAS. E. M. FISCHER, M. D.,

CHICAGO.

The technic of the Abderhalden serum diagnosis depends on the following theory:

"A foreign protein within the body causes the production of a ferment capable of digesting it." Repeated injections of sheep's blood corpuscles into a rabbit is followed by production of a ferment in rabbit's serum capable of digesting sheep's blood corpuscles; the invasion of the body by placental tissue, produces a placenta digesting ferment in the serum. Alteration in the function of tissues is accompanied by alteration in chemical structure. They are then foreign proteins and specific ferments for their digestion are found in the serum. This digestion can take place in vitro as well as in vivo.

Active serum digests protein to peptones and these are further broken down to amino acids. The tissue on which the ferment acts is called the substrate. The ferments, as usual, are specific for each substrate.

To make an Abderhalden test, the particular substrate under investigation, having been washed free from blood and dialyzable substances and coagulated by boiling, is placed in a parchment paper thimble. 10 c.c. blood is drawn from a fasting patient, allowed to clot, centrifuged, and the supernatent, clear, haemoglobin-free serum withdrawn. 2 c.c. serum is added to substrate in the thimble. The thimble is then set into a urinometer jar containing 5 c.c. sterile, distilled water. Toluol is added to the contents of the thimble and the water outside of the thimble. The toluol floats on top and prevents bacterial activity and evaporation.

The urinometer tube is then stoppered and set in incubator for 12 to 18 hours.

The contents of the thimble (serum and substrate) cannot pass through its walls into the surrounding water. If the serum contains specific ferments, digestion of the substrate occurs with the production of dialyzable substances. These pass through the thimble and their presence in the surrounding water is demonstrated by boiling 2 c.c. with 2 drops of a 1 per cent ninhydrin solution. A blue color results. Ninhydrin reacts with all proteins, peptones, polypeptides and amino acids. It is not equally sensitive to all, but is always a very delicate test. Some amino acids can by this means be demonstrated in a dilution of 1 to 95,000.

In applying the test to the diagnosis of pregnancy, placenta tissue is used as the substrate. If digestion occurs, the patient is pregnant.

In dementia praecox, sex glands are used as the substrate, the serum from a male praecox digesting testicle tissue, female praecox serum digesting ovary. Normal serum shows no digestive action.

As the disease progresses, the serum acquires additional digestive ferments, acting on the cerebral cortex and other tissues.

Extreme care must be used in making the test. Many inaccurate results have already been reported because the would-be investigator was not thoroughly trained in physiological chemistry.

DISCUSSION.

Chairman. This was so instructive I will call it a discussion. I think the test which we have had was admirably demonstrated. Now, if there is any further discussion upon the diagnosis and test, the whole subject of dementia præcox is now open. I will call upon Dr. Hickson.

Dr. W. J. Hickson: I came here to listen and be instructed and not to do any talking. I have nothing to add. I am doing the Abderhalden work

and I think it was very nicely demonstrated and it showed the necessity for an exact technique. I did not have such good instruction when I started out. The only thing that I would add is, in my study of the defective group, I was using spinal fluid. I had not heard of that being used yet. I was trying it out and I was sorry to leave that work when I was called to Chicago. We are continuing with the Abderhalden test in the Psychopathic Laboratory in connection with the municipal court and we have made preparation to go on with the work and hope eventually to make a report on the Abderhalden test on the spinal fluid cells, blood serum with the different organs. I found it to be always reliable, but I don't quite agree with Dr. Fisher that we will depend on that entirely. I think we will use it along with the Wassermann reaction and clinical observation, at least for some time until the Abderhalden test is more thoroughly thrashed out.

Dr. Singer: We have been doing quite an amount of the Abderhalden work at the Psychopathic Institute and I feel very strongly that there is need for a very great amount of work in the testing and interpreting of results. I feel from a study of literature that there has not been very much fundamental work done yet. There is very little work that has been done with the normal tissues, normal serum. I have been very much struck with the fact of using dogs for the purpose wherein one is able to control the health of the animal under investigation and that a healthy dog's serum will digest its own organs.

Dr. Lindsay (closing): I must say I have been instructed by these papers on the subject of dementia præcox and by these tests.

Dr. Sterne (closing): There is a great deal to be learned before a positive basis can be established for the application of the Abderhalden test. To my mind it opens a tremendous field of possibilities, and I am personally most favorably inclined to its interpretation, but I want to reiterate that, as things stand now, we must have laboratorians upon which we can rely. Now, there are very few laboratories, even in institutions, which are properly conducted. It is going to require a considerable length of time to establish laboratories which will conduct these tests.

Dr. Holmes (closing): I want to say just a word because I do not like to have the notion prevail that the Abderhalden test is a simple thing, nor that it is too difficult. I still think any young man who has the necessary physiological chemistry at his command can take the fourth edition of the Abderhalden book, which has just appeared, if he be conscientious and willing to work, can carry it out to a success.

Dr. Gehrmann (closing): Mr. Chairman, I have had some experience with laboratory work. Every time when a new procedure presents itself we have the discussion that goes along with it, which lasts maybe for a year or two years, then it becomes general knowledge, either as good or bad. We stand before a new proposition now. We have something; we have to try it out. A few points have been omitted which you can read about when it is published.

---

*Wednesday, July 15, 1914, 9 A. M., Psychopathic Hospital, Chicago.*

Chairman: Meeting called to order. I wish to thank you for coming this long distance from the center of the city, our regular meeting place. I am going to ask Dr. King to preside at this meeting. I wish to introduce to you Dr. King.

Dr. King: I appreciate this courtesy very much indeed to be able to preside at this meeting. While several of the doctors are absent, I feel that our visit to this great institution will be more than compensated, for after hearing the papers we have and going over the institution and getting new views, etc., I shall call the program for this morning and will ask Dr. Davis to welcome you to the Psychopathic Hospital.

Dr. H. I. Davis, Chicago: Ladies and gentlemen, in the name of the commissioners of the board of Cook county I wish to welcome you here this morning.

---

## THE NEW COOK COUNTY PSYCHOPATHIC HOSPITAL.

H. I. DAVIS, M. D.,
Superintendent.
CHICAGO.

*Ladies and Gentlemen:*—It is carrying coals to Newcastle to bring forth argument before an assembly of this kind as to the necessity of organizing psychopathic hospitals. The evolution of the science of psychiatry was mainly instrumental in continually bringing forth new ideas as to what should constitute a modern psychopathic hospital.

Generally speaking, the functions of a psychopathic hospital are twofold:

1. Actual hospital care of patients who have been unfortunate enough to break down mentally. A modern hospital should be equipped to the extent of giving this class of patients the very best of scientific care and nursing, so as to facilitate the most rapid recovery, where recovery is possible.

2. The more important function of ascertaining by way of proper laboratory, psychological, and pathological work the underlying causes of mental abnormalities and, having ascertained such causes, to prevent, by proper instruction of medical men and the public, the increase and possibly the very development of this class of diseases.

This institution has properly been placed in close proximity to the large general hospital, the Cook County Hospital, for the following reasons:

1. Many of the admissions to the Cook County Hospital show mental abnormalities when admitted to the hospital, or develop such abnormalties after admission. Their transfer to the psychopathic hospital is thus facilitated. One hundred and eighty such transfers were made from December 1, 1912, to December 1, 1913.

2. It relieves us of the necessity of establishing separate surgical and obstetrical wards, as we can easily have patients in need of such treatment temporarily transferred to the general hospital.

3. The introduction of the psychiatrist into the general hospital is filled with the greatest possibilities for medicine. The large class of so-called "nervous" patients who find their way into the general hospital can be more intelligently and sympathetically treated when transferred to the psychopathic department.

4. There are continually found in every general hospital, outside of the different fever deliria, post-operative psychoses, psychoses from shock, or loss of blood, neuroses of the gastro-intestinal tract and cases of mental abnormalities accompanying pelvic diseases in women—all cases that can be more properly taken care of in the new psychopathic hospital.

At the present time, there are in existence in this country: the Phipps Psychopathic Hospital, in Baltimore; the Boston Psychopathic Hospital; the State Psychopathic Hospital at Ann Arbor, Mich., and the psychopathic ward at the Bellevue Hospital.

This new psychopathic hospital has a frontage of 160 feet on Wood street, and 156 feet on Polk street. The building is five stories in height on Wood street, and four stories in height on the side wings. It has a bed capacity of 230. The building is of reinforced concrete, tile and fireproof construction with drawn steel door and window trim, and steel furniture. The floors of corridors, bath rooms, kitchens and other service rooms are of artificial marble tile. The floors of all wards and offices are of imported battle-ship linoleum solidly cemented to the concrete floors. The building is equipped with two passenger elevators, one of them of the push button type. Many of the rooms are ventilated by exhaust ventilating fans, but the majority of the rooms and wards have such excellent natural ventilation, that an artificial system is unnecessary.

The building, completely equipped and furnished will cost approximately $470,000, or $2,100 per bed, which is a very low price for a fireproof building throughout, containing such complete equipment for the treatment of this class of patients and so many single rooms.

The first floor contains the administration offices, rooms for social service workers and investigators, out-patient department, court room, male and female receiving wards, and head nurses' room.

Each of the south and north wings of the remaining three floors represents a unit, consisting of rooms with single beds, two beds, and three beds, and a small ward (capacity, 12 beds), nurses' service room, dining room, examining room, room for visitors, and six single rooms for disturbed patients located at the end of the wing and separated from the rest of the unit by a corridor. The wings of the fourth floor differ in that the general wards are larger, having a capacity of eighteen beds each.

The fifth floor is given to hydrotherapeutic apparatus, consisting of batteries of continuous tubs, showers, sprays, sitz baths, tables for masage and packs, electric cabinets, and rest rooms. These rest rooms are equipped with small ice boxes for holding cooled water, milk, or other beverages that may be offered to the patients. These rest rooms are for the use of the patients who are receiving hydrotherapeutic treatment. On the fifth floor is also our laboratory with its modern equipment, and surgical dressing rooms. The placing of the main part of our hydrotherapeutic apparatus on the fifth floor I consider of great advantage; sunlight and air are thus available.

Each wing is also provided with continuous baths in close proximity to the single rooms set aside for disturbed patients thereby facilitating the treatment of such patients with the continuous baths. Each wing is also provided with a very large day room. These day rooms connect with enclosed porches extending the whole width of the main building.

The out-patient department has a separate entrance on Polk street. It is our desire that the doors of this department shall be wide open so that everyone who feels in need of our services will have the right to enter and be treated.

Of the 2,500 admissions to the hospital during the last year, many were paroled from the various state institutions. Over-crowded conditions at the state hospitals very often compel their superintendents to parole or discharge patients before they are really capable of taking care of themselves. The result is that after spending only a short time at home, they are promptly returned to us. This proposed out-patient department should take care of this class of patients, and assist them in every way possible, by having actual supervision over them.

Facilities have been provided for teaching purposes, and the room you are now seated in, with its special entrance, lends itself very readily for clinical purposes. Bed-side observation of patients for small groups of students is also intended.

The social service department has been a feature of the old Cook County Detention Hospital, and it is intended to extend the work of this department. We now have the services of five trained nurses of the Illinois Society of Mental Hygiene, which is a branch of the National Association of Mental Hygiene, whose object it is to advocate measures for the proper study of the causative factors of mental alienation, the proper treatment of insane, and their further care when they are released from the various state institutions. This society has done a great deal of good in awakening the public conscience to the enormity and gravity of this problem in our social life. These five nurses investigate all cases admitted to the hospital.

A word as to our laws regarding the commitment of so-called insane. While the need of a special institution such as we have now established is obvious, it is feared that it will not exercise its greatest usefulness unless conditions regulating the admission of patients to the hospital are changed. It should be possible for patients suffering from so-called psychopathic disorders, and conditions usually classed as border-line cases to enter the hospital without any legal procedure. According to our laws, an order from the county judge committing the patient to this institution must be procured before the patient can be admitted. The law also provides that the cases must be disposed of within ten days after admission. An attempt has been made during the last session of the legislature to extend the limit to forty days, but so far, we have not been successful. The entire question of legal technicalities surrounding the admission of patients to our hospital is far from satisfactory, and all of our institutions will be handicapped from doing the greatest good to the people of our state until it becomes possible for patients to avail themselves of treatment with no more embarrassment than now attends the admission of patients to any hospital.

Until a short while ago, the greatest majority of our patients were brought to our institution virtually as prisoners in the hands of the police. As far as our women patients are concerned, this has been discontinued entirely, and when properly notified, the hospital sends out an automobile in care of a nurse, to bring the patient to the hospital. Since this measure became operative, we do not receive as many excited and disturbed women patients and handcuffs and straps are not seen as often as in the past. This has had a most beneficial effect on the patients. About forty women patients are brought to the hospital in our automobile every month. Quite a few of the women patients are brought in by their relatives so that it is a rare sight now to see a woman brought to the hospital in a patrol wagon.

The medical members of the institution are at the present time its superintendent and a resident physician. As to the staff of nurses, we have seven graduates; there are twenty male and female attendants, and two bath attendants, male and female. Steps have been taken to secure the services of an expert pathologist and psychologist, but owing to the limited funds allotted to us by the present Board of County Commissioners for this fiscal year, the chances are that this matter will be kept in abeyance until the new budget for next year is made up.

We are at the present time occupying only about eighty or ninety beds, but we hope to gradually extend the service.

It is our earnest prayer that the authorities to be will see their way clear to provide sufficient funds to maintain this hospital at its highest possible efficiency for the benefit of our patients and the community at large.

The institution as it is now conducted, and has been for years past is a free institution. There seems to be no valid reason why relatives of patients who are financially able to, should not pay

for their maintenance while they are in this institution, but according to our present laws, the county has no right to conduct anything but a free institution.

[Men who are occupied in the restoration of health to other men by the joint exertion of skill and humanity, are above all the great of the earth. They even partake of divinity. Since to preserve and renew is almost as great as to create.—*Voltaire.*]

DISCUSSION.

Dr. King: I would like to ask one question. The question I wish to ask is this: In a city like Chicago, where you have the fast transportation with our automobile ambulance, is the ideal location of a psychopathic hospital in the heart of a throbbing city or should it be placed in the suburb?

Dr. Davis: As far as Chicago is concerned. I personally feel that the selection and placing of the hospital in the position it is now is the proper one.

Dr. Singer: I may say that this question of psychosis accompanying pellagra is one that has interested me quite a good deal. I was impressed with one remark the doctor made, that those insane with pellagra do not recover; they remain insane. That is contrary to my experience. I have been looking at cases not only in this state, but in the insane asylum in South Carolina and also in Georgia for a type of chronic dementia. So far I have not been able to find it. The qualification of the statement was to the effect that he considers the mental symptom as rather independent of pellagra itself. There is, however, a certain type of mental disorder which is extremely frequent in pellagra and which should be attributed to the pellagra itself and not called an accompanying condition.

---

## A CLINICAL OBSERVATION ON THE PSYCHOSIS ACCOMPANYING PELLAGRA.

A. A. Thurlow, M. D.,
NORMAN, OKLA.

Dr. Thurlow: Owing to a slight misunderstanding I was unable to complete my paper upon the psychosis of pellagra. I will therefore ask your pardon for giving you some random observations.

Now coming from Oklahoma I have had an unusual opportunity to observe; we have an average of perhaps 25 cases a year in our institutions. Pellagra, as you know, occurs in the insane as well as the sane. I wish to state however, that I have seen but very few cases of pellagra in those individuals who are entirely sane and free from neurosis of all kinds. The superintendent of our sanitarium was the first man to report pellagra about 8 years ago from Oklahoma. He had known there were cases of sunburn cropping out from time to time and when he first reported from South Carolina the recognition of the disease he came to it that it was pellagra, which we have also in Oklahoma.

We receive our pellagra principally beginning about the first of May in Oklahoma and the cases come on with increasing frequency until early Fall. The maximum number of cases come on then in the late Spring and also in early October but not in such great numbers at other times of the year. Now in addition to receiving patients who have psycosis and pellagra at the time admitted, pellagra crops out in insane patients and there is no type of insanity in which we have not seen pellagra occur. Some individuals have been in the institution five to fifteen years before the pellagra comes on.

During the last three years of the cases that have turned up in the institution, no two cases have come in the same ward which has some significance as to the contagiousness of the disease. The disease occurs in idiots, the imbecile and is especially frequent in the melancholiac. However, the characteristic psychosis of pellagra and the one which we most frequently see is characterised by the anxious depression—the patient is confused and remains so until he is mentally improved and his improvement is physical. We have had cases in children as young as twelve years under my observation. Of course it is reported as occurring even in younger children. As a rule, we see the depressive face. Just before I left Oklahoma, we discharged a patient entirely well, both mentally and physically, who had depressive melancholia and all of the physical and mental signs. Within two months while the depression was still there she developed signs of pellagra on the thumb of both hands; at the same time the skin of the face began to dry and peal a little bit; the sleek tongue, as we call it, is a sign of pellagra. That is one of the best cases so far as the maniac psychosis that I am able to report. We think nowadays that we can tell pellagra by the facial appearance of the patient admitted to the hospital, we have seen so much of it; the patient coming in with the dried-up face, dried up skin and dried-up expression of the face, a peculiar melancholia expression.

Now I want to mention also the fact that we frequently have a history in our cases in pellagra who come to us with pellagra. These pellagra patients refer to ancestors as having neuritis, not recognized as pellagra, but which from their description we know to have been pellagra. We therefore think there is something to be considered in the heredity of pellagra patients. We frequently have a history of our pellagra patients telling us of an aunt in a distant town having had the disease. We are always searching yet we have not come to any conclusion which we can consider of great importance. Farmers come to us with pellagra and say that their cattle are diseased and that individuals who have pellagra caught it from certain cows. We thought we had made a discovery for a while and we began to ask patients if their cows had any disease, but after a few months of search and investigation we were compelled to abandon that. A case in point: A man had a cow who had a skin lesion but we were unable to make further connection with the disease. Now as to the prognosis in pellagra; it is both mental and physical. I have not seen any case discharged in the last four years, either physical or mental, who has returned, but I am still a young man in the work and I may see some of them back. The cases usually end in death; most of our cases turning up in the institution die during the first attack of pellagra. The older the person the less liable to recovery. A permanent insanity is the rule in those who recover from the physical results of the disease. As to the treatment, we are using but very little in the way of medicine. We treat our cases as depressive cases, melancholia cases, etc. In conclusion I might say that we have considered pellagra to be not so much a cause of insanity as that it is prone to occur in the insane; that is to say, we get a great many cases admitted to the hospital in whom there is both a neurosis latent and the pellagra present. We have very few cases occurring in persons who are entirely free from neurosis.

## WHAT ARE THE INDICATIONS FOR RESTRAINT?

H. J. GAHAGAN, M. D.
Superintendent Elgin State Hospital
ELGIN, ILL.

My subject is one which can be introduced with the usual graphic description of the efforts of Pinel and of other illustrious pioneers in the work of converting madhouses into hospitals; but as that story has been so often told I take for granted that you have already heard of their experiences and will endeavor to recite to you some personal observations of twenty years ago and of today. I will not confine myself to the questions of "Indications for Restraint," but will treat the subject from its various angles.

In June, 1893, I was appointed a member of the Medical Staff of the Elgin State Hospital, and in my first rounds of the wards was astonished to witness the apparently very quiet and undisturbed patients restrained by a variety of means, each more repulsive than the other. Restraint apparatus was supplied for the wards to be used by the attendants when in their judgment the occasion required, katatonics in fixed rigid postures, mute but appealing, strapped to heavy wooden benches or laden with strong leather muffs. The covered crib and straps claimed the victim of acute mental disease, while in the side rooms, under lock and key, were placed the poor unfortunates whose only offenses were that of being troublesome.

Dr. Arthur Loewy, now of Oak Park, had just been appointed Superintendent and to him I protested. He stated that he was opposed to those inhuman methods and proposed to have them stopped and advised me to remove every vestige of restraint possible. Twenty-five were released from the torture of their bodily movements and all doors to side rooms unlocked. Much to the surprise of the attendants no riot ensued nor was there an unruly mob. I was appealed to by the attendants to be careful lest I be harmed but I was not threatened; in fact, during my four years in the service I was not struck by a patient.

Dr. Loewy was so much pleased by the results that in a very short time there was inaugurated a complete revolution for the greater freedom of the insane. All doors to dormitories and side rooms were left open at night. This in addition to the continued removal of restraint and more frequent parole of the grounds was largely responsible for the marvelous recovery rate of fifty-two per cent of those discharged during the biennial period of 1894 to 1896. The custom up to this period of locking patients in dormitories with an open toilet, used by twenty patients, produced most revoluting sanitary conditions, and

I assure you the odors emanating were vile. These toilets were removed, allowing the inmates to use the general toilet of the wards.

Much good has been done in the State institutions to promote the endeavors of those who were in the primitive work of twenty years ago. Through the kindly efforts of such humanitarians as Dr. George A. Zeller, at present alienist of the Board of Administration, and for many years superintendent of Peoria State Hospital, restraint in the hospitals for the insane in Illinois has been abolished to a great extent. Dr. Zeller decries anything that savors of restraint; his illustrations of the folly of such procedure and his epigrams in denunciations of the system are well known.

I have endeavored as superintendent of the Elgin State Hospital, since my appointment March 1, of the present year, to promote greater liberty of the patient. At present there are 325 out of a total of 1780 inmates enjoying parole to the grounds. With the females I have generally adopted the group method, each giving their word of honor to obey the rules and not to separate from the group. This works out very satisfactorily and gives no trouble.

Impress upon the insane individual that he can have the liberty that he enjoys at his home, encourage that state of mind of promptly complying with his desire for individual parole and it relieves him of that fear and apprehension that he is doomed to imprisonment. The most surprising feature of the granting of parole is the less frequent escape. It is the same old story which applies in every day life to restrain a person from that which he most desires increases within him greater tendency to gain it. From March 1, to July 1, eighteen escapes from the Elgin State Hospital occurred, not one under parole conditions; in fact a great many of those who were returned I have placed on parole instead of resorting to the old method of more close observation and confinement.

The paranoiac is a type that causes much trouble with his grumbling and fault finding but, assured increased liberty and parole, seldom will he break his word and attempt to escape.

My experience of twenty years ago and of the present in the care of the insane is that the closer you get to the patient, the more you take him into your confidence, the greater success you will have in the ultimate result of removing his doubts.

There has been an onward march in many ways to procure greater liberty for the insane; there is still room for the more liberal application of sympathy and gentleness. These methods can be carried out successfully if the attendant can be sufficiently impressed with the importance of his relations to the patient. Unfortunately the salary paid is not sufficient to attract an efficient grade of help so that efforts in this line are handicapped. Without any reflection upon the present character of the help supplied by the Civil Service Board, my personal opinion is that it cannot be compared with efficiency gained twenty years ago, when the superintendent was permitted to be the sole judge of those who care for the patient. The restrictions in this respect have been removed by the present Civil Service Commission, in an order lately promulgated, which permits the superintendent to employ the attendant, subject to the approval of the board. This measure will ultimately assist the superintendent to a great extent in surrounding himself with a class of young men and women who will become more closely identified with their work; and who will take up the training school course.

As to the indications for restraint one should resort to every means at hand before using any form. He should seriously consider the individual and not the reason, and finally should order that the kind of restraint to be used should be removed in a few hours. Too often the restraint used for a longer period than is necessary does not attain its fullest measure as it would if removed more quickly. The problem of what to use with the least irritation and to give greater comfort when under restraint is imperative. Mechanical restraint is used at the Elgin state hospital as a rule only in cases of self multilation or a surgical measure in fractures, etc. During violent spells we have had splendid results in giving patients employment on the outside, such as running a lawn mower or allowing the freedom of the grounds under close observation. I have in mind several violent maniacs, whose periods of disturbances were treated in this manner and who were eventually discharged as cured.

July 4, during a celebration on the grounds of

the hospital, all of the inmates who were not bed patients were taken out to enjoy the festivities, all were counted into the wards in the evening and there was no act of violence and but two attempts to escape.

The rules and regulations to govern or to abolish restraint are unsatisfactory as each physician will interpret and quibble to avoid statistical publicity. Shall we allow the patients to tear off clothing? Remove surgical appliances? Mutilate themselves, all to the patients' danger? Shall we apply restraint or shall we sidestep the situation by ordering prolonged packs and call it hydrotherapy? Or by using stupefying drugs and call it medical treatment, when there is no physiological indication for either?—only a restraint intention. Shall we be honest and restrain them in a humane way? In an exceptionally violent case where all our means fail, shall we order all our force to sit and hold this patient and let the other hundred suffer when such control only bruises the patient, increases frenzy or tries the temper of the employees? The recovering patient who has gone through the experience will thank you for restraint; the relatives and friends will also thank you. Restraint is indicated in the unusual case which does not fit in the grooves we have made for the treatment of the ordinary case.

Indications for the use of restraint may to a great extent disappear as the questions of salary, hours, intelligence and requirements are adjusted; much depends upon the well trained nurse, trained along practical lines, which includes the intelligent and individual care of the insane. Too often the teacher dwells for hours intending to impart the knowledge of anatomy, surgery, and bacteriology to the brains of young men and women who are unable to grasp this knowledge by reason of an insufficient primary education and thus good time is lost which could be improved by teaching them the practical problems of care, sympathy, and devotion to duty. There is no question but that restraint was abused in our institutions; many other things too were abused.

The tendency always in medicine is toward improvement. This improvement is the result of research both by individuals and organizations. The methods of treatment of years past are looked upon as crude today; so will our present methods be looked upon in the future. Keys to heretofore mysteries are slowly being found. Hence in the institution the care of the mentally afflicted is a matter of evolution; undesirable things are put away as they are found undesirable and a better method found to control the situation. Restraint is not a new problem; like all problems it has advanced and slid backwards, but always with gain in the end. The question will eventually solve itself. The lime light of any recent publicity does not alter the situation. The tendency to solve the question at one shake is wrong and needs control for fear the pendulum will swing too far.

750 So. State St.

DISCUSSION.

Dr. C. H. Franz (formerly assistant superintendent of the Elgin State Hospital for the Insane): It gives me great pleasure indeed to respond to the chairman's call for a short talk on this excellent paper of my colleague, Dr. Gahagen, with whom I was intimately associated as assistant superintendent in 1892 at the very same hospital over which he now presides as its superintendent. Knowing him as I do, as an earnest and indefatigable worker in the line of "Restraint Reform," I thoroughly agree with the accuracy of the statements in his paper. When we look back to the olden times and think of the inhuman and unscientific methods of caring for the insane it gives us the shivers. Then we found the much popular use of the rawhide, the heavy reinforced leather muff, the prisonlike wristlets, with their steel bands, steel buckles and locks fastened to them; the heavy waist straps, ankle straps and all other kind of straps, and last, but not least, the unsightly crib-bed that looked much as if you were going to crate up your patient and send it f. o. b., like livestock, to the nearest market. My belief is, and I trust the belief of all psychopathic students, that all this method of restraint was not for the benefit of the patient, but more often for the benefit of the lazy attendants. Can you imagine yourself going through such a ward and seeing a row of patients all harnessed up on the heavy wooden benches against the wall, like a bunch of animals in a menagerie? In the time of my service at the state hospital in 1892 "the all-reform wave," abandoning constant restraint and much of the milder restraint, too, struck all the state institutions with much force, coming from no less a personage than Governor Altgeld, the great humanitarian, a friend of the insane. Having his orders in mind and with an avowed purpose of ever fulfilling my Christian duty toward the unfortunate insane, I sallied forth the very first day of my service through all the wards and rooms to release all, if possible, out of their restraint. I remember one case in particular, a little shriveled-up

woman patient, a chronic dement, who, because of her destructive habit, tearing off and chewing up her clothing, had been left almost in a bare room. I ordered the attendant to fix up this patient as becomes a human being. "Dress the patient and keep her dressed," was my order. The attendant questioned the wisdom of my act. "Don't you know," she said, "that you can't keep any clothing on that patient an hour?" "I said, "Sit beside her constantly for a period of your time of duty; keep her clothed and if it costs the state a cotton dress or duck cloth suit every minute of the day. I want you to impress her as if by instinct, as you would an animal, to tolerate the clothing on her body." Of course, all such reforms require diligence, attentiveness and perseverance on the part of the attendants and as Dr. Gahagan stated, such attendants should receive good compensation for their efficiency in this line of work.

It was not the fault of the chronic dement chewing up her clothing; it was lack of diligence and constant, proper attendance for this individual, whose animal-like mind needed but to be impressed, as by instinct, so to speak, with the necessity of tolerance for wearing her clothing on her body. Hence, to succeed with this kind of "restraint-reform work" requires but good, conscientious Christian-like attendants to be ever diligent, to persevere in their undertaking for the humanitarian work—caring for the insane.

Dr. King: This is the end of our official program. We will have a short demonstration by Dr. Singer in this room and then I presume we will visit the institution.

(Here followed a demonstration with a young man patient from the hospital.)

The members of the society then visited the different wards and rooms of the hospital.

*Wednesday, 2 P. M., Hotel La Salle.*

## THE CONSERVATION OF OUR MENTAL FORCES.

E. A. Foley, M. D.
Jacksonville State Hospital
JACKSONVILLE, ILL.

During the past few years lay and professional press have been sounding an alarm that has caused the world to awake and take notice. From their published accounts, one would imagine that the class designated as social delinquents had suddenly increased in numbers. Such, however, is not the case. The number of public charges is gradually increasing, little effort having been put forward to check the reproduction of undesirables. The feeble-minded girl of today becomes the grandparent of a feeble-minded brood in the years to come.

It has now been more than twenty-five years since Dugdale made his famous plea that some attempt be made to check the increase of undesirables. His appeal received no response. Over a quarter of a century has passed since DeVries unearthed the long slumbering Mendelian theories. Notwithstanding the work of these two investigators, little attempt has been paid to the importance of hereditary influences. Only within the past few years has any attempt at all been given to the improvement of racial conditions and the transmission of family traits from parent to offspring.

Just at present we appear to be caught in a whirlpool of reform ideas. Like the waters of Niagara, the products of misfits for ages past have come rushing onward. The onslaught assumed such gigantic proportions that the future began to appear doubtful as far as the sound mental development of the nation was concerned. As a reaction to stem the tide of our apparent mental decay, efforts are being put forth to ascertain the whys and wherefores leading to our loss of nervous stability. What can be accomplished to improve conditions in the future? Many valuable theories have been put forth. Others, probably of equal merit, have not as yet demonstrated their worth. Time alone will tell.

One would judge that the onward march of so-called progress during the past few decades was but the calm before the storm. The thoughtless hurry and anxiety to exceed our neighbors without calculating probable results has wrecked many a nervous system. The desire for speed is probably only an exaggeration of the "Wanderlust." Take and analyze one of these cases. To begin with, we have an individual with a nervous makeup below par. It only takes a little taste of useless pleasure to bankrupt the already shaky structure. As a result of this nervous bankrupt condition, we beget an individual who becomes a menace of posterity. The debated question is, What are we going to do with a source of irritation like this? One cannot rush headlong and grasp every advocated remedy for race improvement.

Eugenics has been tossed backward and forward for the last few years like a weaver's shuttle. The word appealed to the populace. There

seemed to be a mysterious meaning within its depths. Magazine writers appear to have lost their reason over the matter. Tainted literature has taken the place of wholesome reading. Instead of improving conditions, as was possibly intended, young minds could only be made worse from such trash. Do not understand that I refer to eugenics as a failure. Eugenical records and the understanding of the transmission of hereditary traits will undoubtedly result in improving racial conditions. What I intend to infer is, that a few fanatics have gone off at a tangent and wandered wide from the original ideas of Galton and his followers. We cannot at this day and age legislate theoretical laws and conditions on any people. As a rule, the results obtained would be more detrimental than good.

Common sense, judiciously applied, brings better results than fanaticism at any time. By our eugenical teaching, we can only hope to have people lead better lives. It is only by this process that our nervous forces can be strengthened. All of the alarm has been sounded on the side leading one to believe that we were a deteriorated nation. Such, however, is not the case.

The last decade has been one vast stride along all lines. In the arts, sciences and education, the so-called great middle class are becoming more enlightened. They are no longer astonished at the foibles of the non-productive rich. Neither are they sinking into the mire like those afflicted with poverty. The world is advancing at great strides. The idea that the duties of physicians are only to make sick people well no longer prevails. Preventive medicine endeavors now to teach people how not to become sick. The jewels added to our knowledge of syphilis are greater than word or pen can describe. The immunization of 80,000 men against typhoid in our army has been a great means of preventing mental unrest.

All these, and many other advances, have done much to conserve our mental energy. A few cases of the unfit have been pushed forward within the limelight and held up as a bogy by only a small number. Some of the theories advanced for racial improvement are still in the debatable stage. Others have hopelessly failed, only to be thought of as exploded fads or a tale that is twice told. One of these fads that has gone by the wayside is the teaching of so-called sex hygiene in our public schools. If one of these faddists were asked to state what was meant by sex hygiene it is doubtful if he could tell. There has been a great confusion between sex hygiene and sex purity.

The great fall of any movement is due to the over-zealousness of underdone scientists. If not of this class they represent a mental lopsidedness. Instead of doing good, these individuals are on the road to harm and mental destruction of the future nation. No attempt to overcome the existing double standard of morals was made. The biological aspect threatened the very foundation of our mental source—the purity of womanhood.

The overthrowing of this fallacy is just an evidence that our nation is coming to an equal poise in the mental balance. The revelations of the Wassermann tell of the appalling prevalance of specific disease. The lessons learned from this fact have opened the eyes of people who do things. Instruction is at every hand how to overcome the great plague. Prostitution, licensed or clandestine, will be lessened. The hand of womanhood will be felt in every walk of life. Her unfortunate sister will be given a chance to earn an honest living. The chastity of manhood will be demanded and obtained. The vicious classes will have lost their sway. Through these changes, the elevation of womanhood will be brought about by woman herself. By the enfranchising of women, better laws will be enacted, consequently better government will result. As a result, improved conditions of morals will be brought about. The double standard of living will be relegated to the realms of antiquity. The forthcoming race will consequently inherit a more stable mental and physical makeup.

Much has been written regarding supposed improvements following sterilization of defectives. With the writing and passing of laws in several states, nothing else has been accomplished. From time to time gatherings have passed resolutions commending vasectomy. After the flurry and excitement the resolutions would be forgotten until some future time, then brought into the limelight again.

Notwithstanding all of the noise from this source, what has been accomplished? One can cite the 800 cases by Sharp at Jefferson, Indi-

ana, a few know of Carrington's negro, but nothing else. Just recently in the state of Iowa, the prisoners in one of her institutions brought injunction proceedings against the prison physician to prevent the multilation, and multilation it is. Who is to say that man's right to reproduce is to be interfered with? Has anyone the right to say who shall or who shall not bring forth his kind? Where are we to begin and who are to be judges? All of these and more will have to be decided before any stand can be taken for such a procedure.

If vasectomy were in vogue, would it improve racial conditions? Will the operation prevent the spread of syphilis and gonorrhea? Will it curb the appetite of the vicious? True it is we see people who, in our opinion, are not suitable to reproduce their kind. But how about ourselves? May it not be that someone will think the same regarding us?

During the past few years much progress has been made in prison reform. The inmates of our institutions are recognized to be in need of humane medical care. The solitary and the whipping post are slowly vanishing. It is wise that their place be taken by the surgeon's knife? In states where vasectomy legislature has been enacted, what is being done? Why the hesitation? Surely there must be some good reason why these enacted laws are not put into operation. The answer I am unable to give you.

While all of the foregoing has been offered for racial improvement, we do not appear to have arrived at anything definite. There is much difference of opinion. As previously stated, conditions are improving. The facilities for educating the masses are getting better. The man in the two-story house has many means at his command to develop himself and his children. Both day and night schools are numerous. Public health officials are constantly issuing healthgrams. The daily press has become the greatest educator we have.

The stand taken by many of our newspapers in protecting the people from dangerous and unscrupulous individuals will aid greatly in conserving the mental makeup of the future citizens. The noble stand against the Demon Rum will assist in shaping the future life of many a boy and girl. All these acting together demonstrate that the masses are improving. There is a great onward movement for the elimination of the unfit. This movement is quietly working without any blare of trumpets waving of banners. Public sentiment is rapidly changing. People are striving for better government for themselves, better educational facilities for their offspring and better homes for their families. As a result of this great movement, our nervous and mental state cannot help but improve, and improving it is.

---

## STERILIZATION, SEGREGATION, OR CUSTODIAL CARE OF MENTAL DEFECTIVES.

MARY POGUE, M. D.
LAKE GENEVA, WISCONSIN

The wide-spread publicity that is being given to the mental defectives is the outcome of the standardization of the Binet intelligence tests. They enable us to convey to one another certain levels of mental capacity. In this way, the mental age of the patient is obtained. The difference between the mental age and the physical age determines the classification to which he belongs. The application or trying out of these tests to different classes of the body politic has resulted first of all in amazement. We are appalled to find the intelligence of inmates of reformatories, prisons, houses of prostitution, and so on, to be below that of the normal. We believe that twenty per cent of insanity is a further development of a nervous system that finds increasing difficulty in adjusting itself to its environment as it leaves childhood behind and enters adolescence. The intellect of the childhood and young people who make up this class, as measured by the Binet intelligence tests, is below that of the normal.

When we build hospitals, reformatories, schools and colonies for the feeble-minded and epileptic, we are fore-warned of the problem with which we are confronted. We are only now learning that this lowered mental capacity is a defect common to a large class of young people whom society is unable to assimilate We are so overwhelmed by the number, that our first reaction has been toward legislation. We want the law to give us the right to sterilize all of them, or to segregate them until after such an age that reproduction will not be possible. Such

laws have been passed by different states, and in some of them, they have been promptly set aside as being unconstitutional. The liberty of the individual, as well as the right to reproduce his kind, has always been held as a precious heritage. Any attempt to infringe upon this has met with violent opposition. The common law as set forth in the 14th amendment of the constitution of the United States, protects the individual. It protects him as an individual, and not as a conservative force. The setting aside of some of the laws that have been passed by different states, and the hesitancy which other states feel about enforcing such laws is perhaps the best thing that could happen. It has given us time to pause and to look into the situation a little more closely. Sterilization may be a subject for legislation, or it may not.

The Binet intelligence tests are laboratory tests; they ought to be given under the strictest laboratory conditions. The patient to be examined should be cordially put at his ease and sufficient time allowed him to familiarize himself with the room in which the tests are presented, so that his attention will not be distracted. The one who is giving the tests ought to keep throughout the examination, a strictly impartial attitude; he ought never to give them when either he or the patient is tired or hungry or hurried. It is no little thing to write after a child or young person, feeble-minded. It is tragic to the patient and to his family and such a mistake throws great discredit and ridicule upon the examiner. If you are not sure of the result, it is always better to wait until such time as you and the patient are fresh, and then to go over them again. If the patient or the examiner is under an emotion, the result of the intelligence tests will be nil.

When a wide mental gap separates a child from the family from whence he comes, they can understand him and care for him. Morons and their families are more nearly on a level. Their own mental endowments are so similar that he is not out of relation to the family. They are the most difficult ones to pass judgment on. They elude most tests, they seldom permanently fit into any environment.

The lower grades are so obvious and so helpless that society is in no danger from them. They are almost all sterile. The ones whose intelligence comes up to the 12th year level or higher can in a measure care for themselves and stay in society.

There is no more difficult diagnosis in psychiatry than between the so-called morons, constitutional inferiority, the pre-dementia praecox syndrome, or ones in this group whose illness has become stationary.

The laity has always been interested and curious in regard to such illnesses. They are also anxious and eager to see fair play. As far as the writer knows, there has been no outcry against young women, nurses and teachers who have taken at best a six weeks' course in "mental diseases," attempting to make a diagnosis of such serious conditions and advising that the patient be separated from his family and from his home.

We have always had the feeble-minded with us without knowing they were such near neighbors. When society is informed of the great mass of them, the first impulse is that something must be done about it at once. It opens up so many questions; it penetrates into every nook and corner of human life; not one cause, but countless numbers are responsible for it. It is quite a common thing for a committee to draw up resolutions in from fifteen minutes to an hour, that in all probability, will take three generations to work out.

A feeble-minded man and a feeble-minded woman can produce nothing but feeble-minded children. When one parent is profoundly neuropathic and the other feeble-minded, the same pitiful result will stand for their union. Whether or not it is right to let them reproduce their kind is a question so new to us that we have not as yet come to a decision that is either ethical or moral.

We can care for the one who is mindless, or whose mind has gone wrong a little longer, but the change that has taken place is that we now consider ourselves responsible for his offspring.

The bulletin issued by the bureau of the census of the United States, for 1910, gave about 211,000 who were housed in its public institutions for insane and feeble-minded. The possibility of their reproducing their kind is very slight. With most of them their mental conditions are so grave that there is little hope of their mingling in society again.

There must be thousands of people in Chicago today who are on their way to the hospitals for the insane. They are begetting their kind; conception means for the child a neuropathic inheritance. These children yet unborn will know a broken home and they will visit one or the other of their parents in the hospitals for the insane. We do not know enough about it yet to pick them out in time to prevent procreation. That is to select the ones that would transmit their illness.

It would be a great conservative waste to any state or country to take from them all the right of reproduction. Certain insanities are transmissible under certain conditions. They are transmissible as insanity, as feeble-mindedness, as epilepsy. Mental diseases come into families without any previous antecedents that can in any way be held responsible, such as toxemias, infective diseases, and the so-called organic diseases of the brain.

We have no laws in Illinois, Wisconsin, New Jersey, and many other states, by which the insane, feeble-minded or epileptic can be permanently segregated, or segregated until the period of reproduction is past. Relatives and friends may take the patient home and in an extra institutional life they may conceive their kind. After pregnancy is known to have occurred, they are promptly brought back to the institution. This can happen repeatedly.

We must remember that the last word has not been said about evironment,. It is very possible that selected environment, more nearly fitted to meet the needs of these different classes, are going to be helpful in answering some of these questions. There are ones into which we put young people because they cannot get on by themselves, that undoubtedly tend to make them worse. When we ask that a child or young adult be permanently segregated, we must pause and remember that in the envoronment in which we are placing him (in the majority of the state hospitals), there are from 40 to 60 per cent of the patients tubercular.

Studies of such families as the Kallikaks and the Jukes are so overwhelming that they almost act as blocks to consciousness. It is some time before they have sufficiently recovery to even feebly present any evidence other than that of heredity

In the state schools and colonies for the feeble-minded and epileptic, the vast majority of the inmates are one single individual of a family. We would expect the feeble-minded to bring forth their own kind. There are certain strains that under given conditions produce nervous systems whose development is held back.

We reason by analogy and reinforce it by our clinical experience and we find that with a given inheritance on one side (the insanities that are transmittable, feeble-mindedness and epilepsy) and normality on the other, not all the off-springs of that union suffer. The siblings are spared; nature goes back to blocks or units that belong not only to the immediate progenitors, but to a long line of ancestors.

Embryological units that are weak cling together and tend to unite the weakened strain in one organism.

We hear it said on all sides that all the other children in the family are all right. That is what we would expect. We know very little as to what the special circumstances and conditions were that let these weakened embryological units appear. We can only say that it is adverse circumstances, illness, nutrition, elimination, proteid balance, internal glandular insufficiency or hyper-activity.

Two years ago, I reported 100 cases of primary amentia at the meeting of Alienists and Neurologists that was held in Chicago under the auspices of the Chicago Medical Society. The 100 men who are fathers of these children are in every instance alert, successful, business and professional men; there is no question of their not being able to earn a competency for themselves and families. The mothers are equally bright and intelligent. The proof of their fitness to reproduce their kind lies in their other children. No physical or mental tests could have selected them for the parents of feeble-minded offspring. The history so frequently tells of a pregnancy not so well borne as the others, and immediately after birth the difficulty began in finding food that could be assimiliated. This history forces itself upon us again and again.

The physical inferiority is the most tangible; we can get hold of it long before we can the mental inferiority. If a child is unable to assimilate food that is good for the young of the

human race the first year or two of his life, there is every reason to be apprehensive for his neural normality. After conception had taken place, there was a blighting of the nervous system. All that we can say now is that we do not know what these conditions were; we have every reason to believe, though, that we are going to find out.

There are organisms that through inheritance, illnesses, and accidents, are so weakened, as not to have the right to reproduce their kind. We cannot group together numbers of people of any class and say we must sterilize all of them. It must be decided in each instance by the history of the individual and the history of his family. It must be decided by more than one person and the ones who give the decision and write their signatures after it, must have a ripened knowledge of the diseases of the mind.

There are so many who can sterilize and so few who can cure. Life is never ours to take, no matter in what piteous distress the patient may be, but it is within our province to prevent conception.

We have known that there is a tendency for insanity to either end or mend in three generations. This "antedating in the inheritance of pathological conditions" is one of nature's methods of elimination. It is thrown forward into each generation just as physical diseases, such as diabetis, gout, and so on. A woman who loses her mind at the climateric may give birth to a child who will become insane during adolescence or during the first pregnancy. This child in the third generation may be an imbecile and sterile.

Sir George Savage, said in his presidential address to the Psychiatrical Section of the Royal Society of Medicine, that if an individual who had a hereditary taint such as insanity, had reached the age of 25 and had shown no previous sign, that he probably would be free and that he would offer no objections to marriage.

The thing that has happened is, a change had taken place in society at large.

Segregation will be probably more acceptable to the staff of the various state hospitals than will sterilization.

They are the ones who must present it to the parents of these children. It is no easy thing to look a man or woman in the face and to tell them that their child must be segregated until after he is 45.

A mentally deficient child may be the sorrow and responsibility of any man or woman, and this child grow to manhood or womanhood. No intelligent man or woman wants them to reproduce their kind. They are only too eager and willing to be advised. The lasting sorrow of many is that they may have to leave this world and the child behind them. It has taken us a long time to learn that insanity is an illness. The mentally-deficient are sick also, or they have been. They may have recovered from an illness,—the infectious diseases of childhood, and so on, that have left them shipwrecked and without a rudder. Their lowered mental status is in no way different from that of the so-called recovered insane. Their care and treatment is the same, and their relation to society is the same. There may be ones who ought to be sterilized; we may not only believe so today but look back tomorrow and still feel that it was right. There are others who are sick and need our protection (permanent segregation).

The accessibility of the spermatic chord and the ease with which it can be cut is very tempting to a certain type of mind. In all probability this will be their only contribution to psychiatry. Dr. Lewellys F. Barker of Johns Hopkins University said in a paper that was read before the American Medico-Psychological Association that met at Baltimore in May, 1914, that a certain number of physicians are unwilling to have their *pia mater* stretched by such questions.

Too much importance cannot be given to these standard tests. There are flaws in them, and they are disappointing, but they are tangible to present. It was not only yesterday, but it is today, that physicians do not hesitate to pass judgment upon a child's mentality who know nothing about it whatever. They never heard a lecture on such a subject when they were in college, and yet they will take the responsibility of telling a man and woman that their child of 7, 8, or 9 years—who cannot talk nor use his hands—is going to come out all right. They do not identify him with this class of feeble-minded. They look upon him as sick and delicate, but that his head is all right. These tests are something that he can lay his hands on. They are something that can be presented; that can be seen,

and they make a stronger visual impression by their very presentation than so many words do that only leave an auditory image. You can always find a doctor who will say that the child will come out all right.

During infectious diseases and toxic states they see children being made feeble-minded and yet are unable to recognize the blighting that is going on before them.

The intelligence tests only illuminate a part of the nervous system. The uniformity of our public school system makes it comparatively easy to determine what a child ought to know at a given age. The special senses are accessible to standardized measurements also. It is the action or the reaction of the nervous system as a whole that makes it adequate or inadequate, sufficient or insufficient.

Studies for human behavior are more difficult to formulate. They must be gotten at as biological units of the embryo; such as the primitive adjustments of the organism for heat. As the perpheral and sympathetic nervous system is developing, the chemical senses play a part in adaptation. The adjustments in the so-called higher plains of activity must always depend on these lower units. If it were not for the ones that occur at lower levels (reflex and automatic activities) there would be no higher levels. The human intellect was fashioned to meet the needs of human action and to guide it. It is our intelligence that helps us to foresee events and to draw conclusions. It is what the mentally defective does that gets him in conflict with society; his intelligence ought to guide and control him but it is not adequate. The leading hemispheres may do their part, but the sum total of their past experience is brushed aside by an effective element to consciousness.

A little while ago any physician who was courageous enough to write a paper on the mentally deficient was put on the very tail end of the program, and everyone who could get away before her read his paper did so. Grown-up psychiatry has nothing to do with us. They have grown a bit more friendly now that they have found that these feeble-minded children of ours have grown up and that they are reproducing their kind, and tomorrow they will be keenly interested in finding what a fruitful field of research they very nearly passed up. They are willing to grant that some of the insane are sick, and so are some of the mentally deficient.

I do not know whether insanity is increasing or not, or whether there are more mentally deficient children. We are able to pick them out more accurately than we have been before and as we draw nearer together, especially in cities, the standard becomes more exacting.

The widespread interest that is being taken in this subject is the most hopeful sign for the future. There are some feeble-minded, the result of unfortunate inheritance and also the result of environment. The majority are children who are, or who have been sick. The feeble-minded child may come to any man and woman. Some of the women who are bearing the young of the human race, work too hard; they haven't sufficient food, nor the right kind of food. Chronic toxic states such as tuberculosis, syphilis, nephritis, diabetes, cancer, injuries at birth, infectious diseases of childhood, internal secretions, etc.

The mentally deficient have been so overwhelmed by the evidences of heredity that we are losing sight of other quite as potent causes. It is said that the first child born to parents who have come from the agricultural districts of Europe to New York City is defective, and that later children born of the same parents are all right. This surely is not heredity, but environment. The adaptation that the mother is making to tenement life in the city is given as the cause of these defective children. You cannot rob her of all of her progeny on account of this one.

It is a problem that is going to take long and patient research. Society must work out of it not in one way but in several different ways. The answer to some of these questions is going to come from the laboratories.

DISCUSSION.

James Russell Price: I am much interested in the paper and have studied the question a great many years; have kept records of pupils in schools to a large extent and have interviewed fathers until I am thoroughly impressed with the fact that the conditions rests with the father and not with the mother. Heretofore we have thrown the responsibility on mothers throughout the world in regard to feeble-minded children. I have now in my desk at home a record of twenty-six fathers who have kept a diary. If fathers were only taught that the seed they

establish in their loins will bring forth the quality and kind of their mental condition at the time the seed was established, we would have a different state of affairs. It is necessary for the doctors to teach the boys of this country, this world, the importance of genuine fatherhood and not throw the responsibility on the mothers as they have been doing. In one family, where the record was kept, we have seven different characteristics brought out and the different characteristics that are found in these children conform exactly to the record that was kept—the mental condition of the father—the mother knowing nothing whatever about it.

I have a case right here in the city of Chicago in which a father has three very bright children. He got into a mental condition all upset and nervous through drink and other things and had two or three big doses of morphin; in fact, he was almost insane. His wife tried to keep him from going away one night and that night a child was conceived; that child is now an insane child, feeble-minded, unable to take care of itself. Now, the paper in the main was excellent, but the defects come, 99 cases in 100, through the germs that are established in the father's loins and I hold to that from the records I have in my possession.

Dr. S. A. Koppnagle: I have listened with very much interest to this gentleman and I will give the gentleman my telephone and he can call up my wife and she will tell him exactly the same thing as I am telling you now. When I graduated from college and one of the teachers made similar remarks, I said to myself, if I ever get married I shall experiment in this upon my own family. The teacher told me that if I would do some crooked work my child would be crooked; if I drank, my child would be a drunkard, etc. Well, I began to do some crooked work; of course, work that would not hurt anyone. I began to drink exactly at the time when the doctor here stated; it is the most dangerous for the offspring. Well, to make my story short, every one of my children are as honest as I am, if I am honest. They are all very honest, very sincere, studious, intelligent, graduates all of high schools and universities, but these things have not had any effect upon them whatever. If anything has any effect upon mental deficiency it is the environment.

Dr. Julius Grinker. I think Miss Pogue's paper a very excellent one. She has brought out some very fine points. No doubt the paper is a classic, and though we cannot agree with everything she said, yet I am sure the medical men and women here will agree with her in the essentials. Nutritional changes, I believe, are about the only thing that we can today get hold of, because the subject itself is shrouded in obscurity. It is more so than insanity itself. It appears that feeble-mindedness has its roots way back in our ancestors and is hastened by the immediate parentage, particularly by the nutritional changes going on in the mother and perhaps the chemical changes brought about in the father's make-up during conception. As to alcoholism and anything tending to produce intoxication, I think there is no doubt that it serves as a factor, because we see daily epileptics and feeble-minded the offspring of alcoholism. But if the statement that the mental frame of mind immediately preceding the birth of a child has any effect, virtue or vice, I think that is phrenology. It is pure hearsay. At this time many women attempt abortion before the child is born; in other words, they use methods of preventing conception that are in the nature of poisons. They are taking poisons when they discover they have first conceived. I have myself come across several instances in which I am certain that the feeble-mindedness of the child was due to abortion medicine taken by the mother. But the great cause must be sought much further back, not perhaps in the immediate ancestry, but perhaps further back, and so we are again where we started. Feeble-mindedness is one of the greatest problems and it is only when the race will have established rules the same as we have in mating cattle; if we could just simply mate a true race with another true race, then only may we hope to produce normal offspring. But as matters stand today I believe that the problem cannot at all be solved and we still must do that which we can, viz., improve the nutrition of the father and mother and the infant in its early days.

Dr. Meyer Solomon: The paper of Dr. Pogue is, I think, admirable. It is extremely sane and she takes the subject up in a way which should meet with the approval of all people who consider the subject of the feeble-minded from a scientific and broad standpoint. The statements we have been hearing here this afternoon about the effect of the thoughts that an individual may have upon the offspring or statements which we have been hearing in regard to the history for thousands of years, remind me of theosophy, astrology and all those things which depend upon certain ideas which individuals have conceived and which they are fixed upon as a religion and which they stick to in spite of anything which may be said to the contrary. There has not been one iota of fact produced to show that thoughts of individuals before conception or any other time have any influence upon the offspring, except this, that certain trends which an individual may have, dependent upon the constitution and germ cells, may be transmitted to the offspring. If all the thoughts which we have or any of the special tendencies which we develop were transmitted to the offspring I fear that instead of being way up in the scale of development in evolution as we are now, we would be once more down to the stage of the ameba. If all evil at the time of conception were transmitted to the offspring, we would have an awful world. The law of nature has so arranged things that thoughts or even characteristics are not transmitted to the offspring. That is one of the fundamental things in biology about which there ought not to be any discussion at all, and we regret exceedingly that

some of the gentlemen drifted away absolutely from the subject discussed in Dr. Pogue's paper.

Dr. Pogue (closing): A discussion running so far adrift would not be permitted in some scientific meetings; it was almost a clinic. When you speak of environment, you must remember that the child is born into a family, is born in the same environment of the other children in that family. There is no different condition surrounding this particular one. In regard to Dr. Grinker saying that abortion may be one of the causes I do not know. If you think of the great mass of women I feel there are few trying abortion. It was recently brought up that professional bridge players are not bearing children. They are. Toxic drugs, of course, will produce toxemia just the same as alcohol, but I have touched my point in my paper.

## THE CONTRIBUTION OF VISUAL IMAGERY TO VERBAL THOUGHT. A COMPARATIVE STUDY OF SEEING AND BLIND SUBJECTS.

CLARA HARRISON TOWN, Ph. D.
State Psychologist, Lincoln, Ill.

The problems presented by atypical individuals, be they insane, feeble-minded, retarded, criminalistic, blind, or deaf, when viewed from a psychological standpoint fall into three distinct groups—the diagnostic, the therapeutic and the research.

The psychologist has at hand a more or less vast collection of data concerning mental processes and conditions, which goes far toward making possible an understanding of an unusual mental type. These data are exact methods of applying them to individual cases, make it possible for the psychologist to render service in the clinical examination and subsequent explanation of atypical cases.

The psychologist is also equipped, as a result of the studies in genetic psychology and in the psychology of education with much information which guides him in discovering the best methods, be they educational or re-educational, of handling individual cases in order to overcome or to alleviate existing abnormal conditions.

These are the immediately practical, socially important problems. The third class of problems is no less practical ultimately. It is possible through a systematic study of the data collected in the examination of atypical individuals to contribute definite information to the science of psychology, information which will in time make the diagnostic and therapeutic work much more positively useful than it is today. Experimental psychology is at the present time still in its youth, still in the period of rapid growth, the formative period, and the study of atypical individuals should in the next few years make important contributions toward its development.

Two years ago I presented before this organization one of the standardized diagnostic methods, last year I attempted to demonstrate the practical usefulness to the community of the application of such methods, for this meeting I have chosen one of the more technical research problems.

Given a complex situation to study it is always necessary to reduce it as far as possible to its elements. This is difficult to do, and still more difficult is it to isolate an element for study after it has been discovered. There are two ways of proceeding from this point, isolating the element as completely as possible for study or substituting a complex situation like the first but minus the element in question. The difference in the two situations can then be attributed to the element in question plus the results of its interaction on the situation in toto and on its parts.

Considering a mental experience of any given individual such a complex situation, the task of the psychologist is to analyze it into its simplest processes and discover the contribution of each to the extremely complex whole. The greatest difficulties encountered in the course of such an analysis arise from the complexity of even the most simple mental experience and the consequent difficulty while studying one aspect of excluding the modifying influences of others.

In atypical individuals the various mental processes are not so evenly balanced as in normal persons; it frequently happens with the former that certain aspects of the mental life stand out very prominently while other aspects are nearly submerged or entirely lost. With the insane for instance, some one emotional attitude may remain fixed for months or even years; it is apparently immune to all environmental influences and an unexampled opportunity is offered for its minute analysis. Among the feeble-minded we meet individuals whose development has stopped short of all the higher imaginal and rational processes and of all the altruistic emotions, and we have before us the phenomenon of the human mind deprived of those characteristics which have so-

cialized and civilized mankind. With the blind and the deaf the situation is still a different one. These persons are deprived of one of the avenues through which our perceptions of things are built up, they are each deprived of one of the chief classes of the elements of thought. The congenitally blind can never think of space, of form, of color as we do, for the elements of such thinking are absent. The congenitally deaf can never think of words as we do, and as thought is predominately verbal it follows that they cannot *think* as we do.

It may seem strange to state that possibly the most fruitful method of studying the contribution of vision to the thought processes will prove to be through a study of the thought processes of the blind and that possibly the most fruitful method of studying the contribution of audition to the thought processes will prove to be through a study of the thought processes of the deaf, but to me it seems most probable. Given otherwise normal individuals, we have in the blind and the deaf mentalities just like our own minus one important activity; the difference between the mentality of these individuals and our own then must be that one activity plus its interrelations with the other mental activities.

That there is a difference in the resulting mentality which cannot be overcome by intensive and specialized educational training is evident without scientific research to those who come constantly in contact with the blind and the deaf. On first visiting schools for these classes I was impressed by such statements from the superintendents as the following: "O I know the deaf so well, I know just what to expect from them. The deaf are a peculiar people, and one must know them in order to learn how to handle them," and "That is just what I should expect from a blind man, the blind are not just like seeing people you know; you learn to know them after living with them a while."

With this rather long preface I am going to present for your consideration a little study of the contribution of visual imagery to verbal thought, made by a comparative study of blind and normal persons. It is assumed first of all that much of our thought, if not all, is carried on by means of memory images of various modalities, that most of our consciousness apart from its sensory elements is made up of memory images, the result of some past sensory experience. We all speak of seeing with our mind's eye; we are then, in more technical language, experiencing visual images. We also hear with our mind's ear, smell with our mind's nose, taste with our mind's tongue, and feel with our mind's fingers, though these figures of speech are not so generally employed. In these several instances we are experiencing auditory, olfactory, gustatory and tactual memory images.

A very large part of our thinking is carried on by means of words, by means of internal language as it is called, or more technically endophasia. Now our analyses of these word images show them to be made up of visual images, or memories of the appearance of words and letters, of auditory images, or memories of the sounds of words and letters, and of motor images or memories of the speaking or writing of words and letters. There is present besides a consciousness of the meaning of the word which seems to belong inseparably to the complex of verbal images which constitute the word experience.

Those of you who are conversant with the recent controversy on the psychology of the higher thought processes and of imageless thought, may of course, disagree with the last concept and perhaps with those that precede it, and those of you who have been following the thought of the behaviorists may think the whole discussion wide of the mark. Whatever future research may discover, the analysis above outlined is still widely accepted and the belief in the existence of imageless thought does not necessarily exclude the recognition of mental imagery also.

Most of our data concerning mental imagery depend in the last instance upon introspection, they are gathered by the introspective method; certain tasks are given to a number of persons who are afterward asked for an account of what and how they thought and felt during the experience. The ability to give such an account with any sort of accuracy or adequacy presupposes much practice and also a psychological view point. One who has not the practice overlooks much of the experience and one who has not the psychological viewpoint does not know how to describe what he does observe. When it is possible to check up introspections with quantitative results or to dispense entirely with introspection and depend absolutely on quantitative results we

feel that we have secured a more reliable method.

In February, 1912, Miss Mabel Ruth Fernald, of the Chicago Normal School, published a monograph on the "Diagnosis of Mental Imagery." This study is a very interesting piece of work and reports the results of many kinds of tests made on a group of trained subjects. Introspections were obtained in all cases and the attempt was also made to determine whether any of the tests used had a purely objective value, that is, whether their quantitative results apart from introspections could be depended on to indicate what kinds of imagery the subject had employed. Miss Fernald found no test which she considered of value as a purely objective test but several quantitative results of which might be used in conjunction with introspection. Among the latter were two tests which seemed to be more adequately performed by persons who were ready visualizers. In the first test the subject was required to spell quite difficult words backward. The difficulty and unusualness of the task prevents an automatic reply and the mental processes used in its solution become apparent to the trained subject, and sometimes also to the experimenter. The second was a similar test: in it the words were spelled backward by the experimenter and the subject was required to name them. Comparison of Miss Fernald's quantitative results, that is, the errors made and time taken, with the subject's introspections, indicate that the subjects who were the best visualizers stood the best tests, although the results were not conclusive enough to indicate that the successful performance of the test necessitates clear visualization.

It occurred to me that we might get some additional evidence concerning the objective value of these tests in determining the use of visual imagery in a given subject, by testing them out on subjects who had no visual imagery, subjects who had been blind since infancy. A comparison of the quantitative results obtained from a group of such blind persons, with the quantitative results obtained from a group of seeing persons, would undoubtedly reveal whether the absence of visual imagery is a severe handicap in the performance of the test.

The blind subjects were six high school pupils of the Illinois School for the Blind at Jacksonville, the seeing subjects six normal adults all of them in the early twenties; four are teachers of children and two are stenographers. All of these subjects were entirely unpracticed as subjects in any sort of mental testing, and all had sufficient education to rule out the ability to spell as a factor in the results. I later used the tests with five additional blind students, this time with the special aim of observing method and studying quality of errors.

The results briefly are as follows. The first test calls for the spelling of 22 words backward, the time for spelling each word, and the number of errors made were recorded. I then computed for each individual and each group, the average time, the average number of errors per word, and a general efficiency index. The efficiency index was secured as follows: 100 was arbitrarily assumed as a maximal accuracy grading per word, from this was deducted the average error per word and into the accuracy index thus secured was taken the average time, the result expressing the general efficiency. The formula is $E = \frac{A}{S}$, E, standing for efficiency, A for accuracy and S for speed.

The results for the seeing group are, average number of errors per word, 0.76, average time per word, 22.63 seconds, and efficiency index, 4.39. The results for the blind group are, average number of errors per word, 1.11, average time per word 25.91 seconds, and efficiency index 3.82. This is a difference in error of 0.35, in time of 3.28 seconds, and in efficiency of 0.57 in favor of the seeing subjects. The difference is not so great in any instance as that between the average of the least successful of the seeing group and the average for the seeing group—(0.83 difference in error, 15.17 seconds difference in time, 1.80 difference in efficiency), and not so great even as the differences between the averages for this same seeing subject and the averages for the blind group—(0.48 difference in error, 11.89 seconds difference in time and 1.053 difference in efficiency), *these differences being in favor of the blind.*

The second test calls for recognition by the subject of 22 moderately difficult words spelled backward by the experimenter. The speed and accuracy are both indicated in this test by the number of times it was necessary to spell a word before the subject recognized it.

The average number of words named on first

spelling by the seeing group was 15.83, the average number named on first spelling by the blind group was 14. The average number of times it was necessary to spell words for the seeing group was 1.47, for the blind group 1.56.

Again we have slight differences in favor of the seeing group, but differences so slight that they are exceeded as in the first test by individual differences in the opposite direction. One of the blind subjects named 19 of the 22 words on the first spelling and the average number of repetitions required by him was but 1.22.

In the first test the errors made by both seeing and blind subjects were of four kinds, omission, transposition, insertion, and substitution. The percentages of the total errors made which belong to each of these classes are, seeing group, omission, 64.8, transpositions, 14.1, substitutions 7.8, insertions 13.1; blind group, omissions, 37,1, transpositions, 31.7, substitutions 21.5, and insertions 9.7. Omissions form the greatest number of errors in both groups and transpositions rank next, while the blind exceed in substitutions and transpositions and the seeing in omissions.

The results for the blind in this comparison are taken from the results obtained from the second group of blind persons, whom I tested with the object of noting peculiarities of method and errors. These subjects were asked to repeat the effort to spell each word until success was achieved, and were encouraged to do their thinking aloud. In the first test all of the subjects spelled the complete word forward first, then backward either by syllables or some other system of grouping. The syllabication and grouping were evidenced by the decided pauses between groups of letters, and also at times, by lip movements indicating a forward spelling process preceding the backward spelling. Two of these subjects spoke of thinking of the letters as in the Braille, whenever they experienced difficulty with the words.

In the second test the most accurate subject of all repeated every letter after me in a low tone, and as a rule named the words immediately after the last letter was given. Very rarely she spelled a word forward before naming it. She said she placed the letters in space from right to left as I named them. The other four all spelled words aloud before naming them, some spelled first backward then forward, one never recognized a word until he had spelled it completely forward, one sometimes succeeded in spelling the word completely and correctly without recognizing it, two spelled words partially and guessed the rest. All of these subjects spelled aloud the words that puzzled them, thus showing their dependence on the kinesthetic vocal element. Again several mentioned thinking of the letters as they would appear on the Braille.

From the results obtained I judge that the essential element in the visual imagery of words for the spelling process and perhaps therefore for verbal thought in general, is not its form but its relative spacial position, an attribute which the blind secures not through vision but through touch. This touch spacial attribute seems just as efficacious to the spelling process as does the visual spacial attribute. Perhaps its presence makes possible to the blind just as high a language development as is possible to the seeing person.

The fact that the visual element is not essential to a high degree of language development may perhaps account for the fact that the schools for the blind are able to carry their pupils to much higher levels intellectually than the schools for the deaf are able to carry their pupils. The auditory element in language seems to be an essential factor which cannot be supplied by any other element, consequently those ideas which are only developed in civilized man by the aid of language are never adequately attained by the congenitally deaf; the higher abstractions remain closed to them because their language development, their language understanding, is at best a crippled product.

The conclusions from the study are two. First, the tests in question have little or no value as objective tests for determining the use of visual imagery by a given individual. Second, that visual verbal imagery assists the spelling process rather through its attribute of relative space position than through its attribute of form, and that the attribute of relative space position can be equally well attained through tactual sensations.

CLASSIFICATION OF ERRORS.

| Seeing Subjects | Omissions No. | Omissions Percent | Transpositions No. | Transpositions Percent | Substitutons No. | Substitutons Percent | Insertions No. | Insertions Percent |
|---|---|---|---|---|---|---|---|---|
| 1..... | 6 | 86 | .. | .. | 1 | 14 | .. | .. |
| 2..... | 12 | 60 | 5 | 25 | 1 | 5 | 2 | 10 |
| 3..... | 10 | 53 | 6 | 32 | 0 | 0 | 3 | 15 |
| 4..... | 10 | 84 | 0 | .. | 1 | 8 | 1 | 8 |
| 5..... | 5 | 72 | 1 | 14 | .. | .. | 1 | 14 |
| 6..... | 12 | 34 | 5 | 14 | 7 | 20 | 11 | 32 |
| Total ..... | 55 | 389 | 17 | 85 | 10 | 47 | 18 | 79 |
| Average .... | | 64.8 | .. | 14.1 | .. | 7.8 | .. | 13.1 |

| Blind Subjects | Omissions No. | Percent | Transpositions No. | Percent | Substitutions No. | Percent | Insertions No. | Percent |
|---|---|---|---|---|---|---|---|---|
| 1 | 7 | 33 | 10 | 48 | 3 | 14 | 1 | 5 |
| 2 | 10 | 41 | 4 | 17 | 6 | 25 | 4 | 17 |
| 3 | 4 | 40 | 5 | 50 | 0 | .. | 1 | 10 |
| 4 | 3 | 37.5 | 1 | 12.5 | 3 | 37.5 | 1 | 12.5 |
| 5 | 9 | 34 | 8 | 31 | 8 | 31 | 1 | 4 |
| Total | 33 | 185.5 | 28 | 158.5 | 20 | 107.5 | 8 | 48.5 |
| Average | .... | 37.1 | .. | 31.7 | .. | 21.5 | .. | 9.7 |

TEST 1—SEEING SUBJECTS.

| Words spelled by subject | Sub. 1 Errors | Sub. 1 Time in secds. | Sub. 2 Errors | Sub. 2 Time in secds. | Sub. 3 Errors | Sub. 3 Time in secds. | Sub. 4 Errors | Sub. 4 Time in secds. | Sub. 5 Errors | Sub. 5 Time in secds. | Sub. 6 Errors | Sub. 6 Time in secds. | Group |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Complexity | 1 | 13 | 3 | 14 | 2 | 8 | 1 | 15 | 0 | 8 | 2 | 9 | |
| Somnabulist | 1 | 25 | 4 | 30 | 2 | 10 | 0 | 20 | 0 | 15 | 2 | 28 | |
| Superstition | 0 | 24 | 2 | 36 | 1 | 25 | 0 | 15 | 0 | 13 | 4 | 80 | |
| Generosity | 0 | 20 | 0 | 15 | 0 | 11 | 0 | 15 | 0 | 28 | 0 | 20 | |
| Contemporary | 0 | 25 | 3 | 29 | 3 | 18 | 1 | 15 | 0 | 16 | 5 | 25 | |
| Requisite | 0 | 28 | 2 | 25 | 0 | 15 | 0 | 12 | 0 | 11 | 1 | 65 | |
| Municipal | 0 | 20 | 1 | 30 | 1 | 12 | 2 | 10 | 0 | 8 | 0 | 15 | |
| Ignominy | 2 | 18 | 0 | 15 | 0 | 28 | 0 | 10 | 0 | 7 | 0 | 50 | |
| Fortuitous | 0 | 18 | 1 | 25 | 1 | 20 | 0 | 15 | 0 | 13 | 1 | 27 | |
| Acquaintance | 1 | 40 | 3 | 30 | 1 | 65 | 2 | 15 | 1 | 18 | 8 | 140 | |
| Unexampled | 0 | 25 | 0 | 30 | 0 | 21 | 0 | 20 | 0 | 17 | 0 | 27 | |
| Symmetrical | 0 | 18 | 1 | 18 | 3 | 22 | 1 | 20 | 2 | 30 | 3 | 20 | |
| Reverberate | 0 | 18 | 0 | 12 | 0 | 15 | 0 | 15 | 1 | 17 | 1 | 20 | |
| Punctuation | 0 | 22 | 0 | 21 | 1 | 12 | 0 | 24 | 0 | 18 | 2 | 13 | |
| Suitable | 0 | 12 | 0 | 20 | 0 | 10 | 0 | 10 | 0 | 5 | 3 | 28 | |
| Sociability | 2 | 41 | 0 | 60 | 0 | 20 | 3 | 30 | 3 | 15 | 2 | 25 | |
| Magistrate | 0 | 22 | 0 | 20 | 0 | 15 | 2 | 15 | 0 | 15 | 0 | 20 | |
| Fraction | 0 | 13 | 0 | 18 | 0 | 8 | 0 | 10 | 0 | 7 | 1 | 15 | |
| Daughter | 0 | 10 | 0 | 15 | 0 | 8 | 0 | 15 | 0 | 8 | 0 | 13 | |
| Technicality | 0 | 58 | 0 | 19 | 4 | 70 | 0 | 18 | 0 | 30 | 0 | 55 | |
| Irresolute | 0 | 36 | 0 | 20 | 0 | 15 | 0 | 20 | 0 | 10 | 0 | 80 | |
| Knowledge | 0 | 18 | 0 | 20 | 0 | 12 | 0 | 17 | 0 | 8 | 0 | 57 | |
| Words with errors | | 5 | | 9 | | 10 | | 7 | | 4 | | 13 | 8 |
| Ave. error in wds. with error | | 1.4 | | 2. | | 1.9 | | 1.7 | | 1.7 | | 3. | 1.95 |
| Ave. error (all words) | | 0.33 | | 0.90 | | 0.86 | | 0.54 | | 0.33 | | 1.59 | .76 |
| Average time | | 23.8 | | 23.7 | | 20. | | 16.1 | | 14.4 | | 37.8 | 22.63 |
| *Efficiency index | | 4.1 | | 4.1 | | 4.95 | | 6.17 | | 6.92 | | 2.59 | 4.39 |

*Efficiency index $= \frac{100 - \text{Ave. error}}{\text{Ave. time}}$

TEST 1—BLIND SUBJECTS.

| Words spelled by subject | Sub. 1 Errors | Sub. 1 Time in secds. | Sub. 2 Errors | Sub. 2 Time in secds. | Sub. 3 Errors | Sub. 3 Time in secds. | Sub. 4 Errors | Sub. 4 Time in secds. | Sub. 5 Errors | Sub. 5 Time in secds. | Sub. 6 Errors | Sub. 6 Time in secds. | Group |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Complexity | 2 | 45 | 1 | 15 | 1 | 50 | 1 | 15 | 1 | 30 | 0 | 5 | |
| Somnabulist | 3 | 45 | 4 | 30 | 5 | 35 | 2 | 35 | 2 | 20 | 1 | 12 | |
| Superstition | 1 | 80 | 2 | 30 | 0 | 50 | 2 | 35 | 3 | 30 | 0 | 30 | |
| Generosity | 1 | 55 | 2 | 45 | 0 | 30 | 2 | 15 | 2 | 12 | 0 | 15 | |
| Contemporary | 0 | 40 | 1 | 50 | 1 | 40 | 6 | 30 | 0 | 20 | 0 | 40 | |
| Requisite | 0 | 15 | 0 | 30 | 1 | 15 | 2 | 20 | 3 | 20 | 0 | 8 | |
| Municipal | 1 | 25 | 0 | 15 | 0 | 38 | 2 | 30 | 3 | 30 | 0 | 12 | |
| Ignominy | 1 | 20 | 1 | 15 | 0 | 20 | 0 | 30 | 0 | 30 | 0 | 30 | |
| Fortuitous | 1 | 30 | 1 | 15 | 2 | 25 | 3 | 20 | 1 | 25 | 1 | 10 | |
| Acquaintance | 1 | 30 | 0 | 30 | 2 | 40 | 3 | 30 | 2 | 20 | 1 | 12 | |
| Unexampled | 2 | 20 | 2 | 20 | 1 | 30 | 1 | 30 | 1 | 80 | 0 | 12 | |
| Symmetrical | 1 | 35 | 3 | 20 | 1 | 20 | 3 | 20 | 1 | 30 | 1 | 15 | |
| Reverberate | 1 | 30 | 0 | 20 | 1 | 55 | 0 | 30 | 2 | 50 | 0 | 80 | |
| Punctuation | 0 | 25 | 2 | 25 | 0 | 50 | 3 | 30 | 1 | 13 | 0 | 15 | |
| Suitable | 0 | 12 | 2 | 15 | 0 | 12 | 0 | 12 | 1 | 8 | 0 | 7 | |
| Sociability | 0 | 25 | 1 | 18 | 5 | 60 | 1 | 30 | 0 | 15 | 1 | 18 | |
| Magistrate | 0 | 20 | 0 | 25 | 1 | 27 | 0 | 22 | 2 | 30 | 0 | 10 | |
| Fraction | 0 | 10 | 4 | 10 | 0 | 10 | 0 | 8 | 0 | 10 | 0 | 8 | |
| Daughter | 0 | 12 | 1 | 10 | 0 | 22 | 0 | 10 | 1 | 10 | 0 | 8 | |
| Technicality | 2 | 60 | 2 | 30 | 1 | 30 | 5 | 30 | 2 | 50 | 1 | 20 | |
| Irresolute | 0 | 30 | 2 | 33 | 0 | 43 | 2 | 20 | 2 | 20 | 0 | 12 | |
| Knowledge | 0 | 40 | 1 | 15 | 0 | 35 | 2 | 18 | 1 | 15 | 0 | 10 | |
| Words with errors | | 12 | | 17 | | 12 | | 16 | | 18 | | 6 | 13.5 |
| Ave. error in wds. with error | | 1.4 | | 1.8 | | 1.9 | | 2.5 | | 1.7 | | 1. | 1.71 |
| Ave. error (all words) | | .77 | | 1.45 | | 1. | | 1.81 | | 1.40 | | 0.27 | 1.11 |
| Average time | | 32. | | 23.4 | | 33.5 | | 23.6 | | 25.8 | | 17.2 | 25.91 |
| Efficiency index | | 3.10 | | 4.21 | | 2.95 | | 4.16 | | 3.82 | | 5.8 | 3.82 |

TEST 2—SEEING SUBJECTS.

| Word spelled by Experimenter | Subject 1 Repetitions | Subject 2 Repetitions | Subject 3 Repetitions | Subject 4 Repetitions | Subject 5 Repetitions | Subject 6 Repetitions | Group |
|---|---|---|---|---|---|---|---|
| Stimulus | 2 | 2 | 2 | 1 | 1 | 1 | |
| September | 6 | 1 | 1 | 1 | 1 | 1 | |
| Concerned | 2 | 1 | 2 | 8 | 4 | 5 | |
| Various | 1 | 1 | 1 | 4 | 1 | 1 | |
| Description | 2 | 1 | 1 | 4 | 1 | 2 | |
| Christmas | 2 | 2 | 1 | 1 | 1 | 1 | |
| Predominant | 6 | 3 | 2 | 1 | 1 | 2 | |
| Objects | 1 | 1 | 3 | 1 | 1 | 1 | |
| Occurred | 1 | 1 | 1 | 2 | 1 | 1 | |
| Dependence | 2 | 1 | 1 | 2 | 1 | 2 | |
| Preceding | 2 | 1 | 2 | 1 | 1 | 1 | |
| Remembered | 1 | 1 | 1 | 1 | 1 | 1 | |
| Muscular | 1 | 1 | 1 | 1 | 1 | 1 | |
| Operation | 1 | 1 | 1 | 2 | 1 | 1 | |
| Musical | 2 | 1 | 1 | 2 | 1 | 1 | |
| Whistling | 1 | 1 | 1 | 2 | 1 | 1 | |
| Beautiful | 1 | 1 | 1 | 1 | 1 | 1 | |
| Significant | 1 | 1 | 2 | 1 | 1 | 1 | |
| Orange | 1 | 1 | 1 | 2 | 1 | 1 | |
| Indication | 2 | 2 | 1 | 1 | 1 | 2 | |
| Distinguish | 3 | 1 | 2 | 1 | 1 | 1 | |
| Important | 1 | 1 | 1 | 1 | 1 | 1 | |
| Named on first spelling | 11 | 18 | 15 | 13 | 21 | 17 | Ave. 15.83 |
| Average number times spelled | 1.9 | 1.22 | 1.36 | 1.86 | 1.13 | 1.35 | 1.47 |

TEST 2—BLIND SUBJECTS.

| Words spelled by Experimenter | Subject 1 Repetitions | Subject 2 Repetitions | Subject 3 Repetitions | Subject 4 Repetitions | Subject 5 Repetitions | Subject 6 Repetitions | Group |
|---|---|---|---|---|---|---|---|
| Stimulus | 3 | .. | 3 | 3 | 3 | 1 | |
| September | 1 | 2 | 4 | 1 | 2 | 1 | |
| Concerned | 3 | 4 | 2 | 2 | 2 | 3 | |
| Various | 1 | 1 | 1 | 1 | 1 | 1 | |
| Description | 2 | 2 | 2 | 1 | 5 | 1 | |
| Christmas | 1 | 3 | 2 | 1 | 2 | 1 | |
| Predominant | 3 | 3 | .. | 1 | 2 | 3 | |
| Objects | 1 | 1 | 2 | 1 | 1 | 1 | |
| Occurred | 1 | 2 | 1 | 1 | 1 | 1 | |
| Dependence | 1 | 1 | .. | 1 | 1 | 1 | |
| Preceding | 1 | 2 | .. | 1 | 1 | 1 | |
| Remembered | 1 | 1 | 1 | 1 | 1 | 1 | |
| Muscular | 1 | 1 | 3 | 3 | 4 | 1 | |
| Operation | 1 | 1 | 1 | 1 | 1 | 1 | |
| Musical | 1 | 1 | 1 | 1 | 1 | 1 | |
| Whistling | 1 | 1 | 2 | 1 | 1 | 2 | |
| Beautiful | 1 | 1 | 1 | 1 | 1 | 1 | |
| Significant | 1 | 1 | 2 | 1 | 2 | 1 | |
| Orange | 1 | 3 | 1 | 1 | 1 | 1 | |
| Indication | 1 | 4 | 3 | 1 | 1 | 3 | |
| Distinguish | 3 | 3 | .. | 1 | 2 | 1 | |
| Important | 2 | 1 | .. | 1 | 1 | 1 | |
| Named on first spelling | 16 | 11 | 7 | 19 | 13 | 18 | Ave. 14 |
| Ave. number times spelled | 1.45 | 1.85 | 1.88 | 1.22 | 1.68 | 1.31 | 1.56 |

DISCUSSION.

Dr. Crohn: When one works with words one is working with objects that have so many collateral associations that we are in the dark as to time tests, as to error and other tests. But I think if figures have been used, an arbitrary number, say, from one to 1,789,910, that could not possibly call forth any painful memory or sad memory or be connected with the emotion trend of the subject, a lot of collateral issues would not be brought into the matter. Words are always connected with emotional pain. There is always something happening in our life that a word may bring forth, but if we take figures, they bring nothing to mind but the simple form of the figure, which rarely has any association with it. I think that had the experiments by Dr. Towne been conducted with figures instead of words they would have been clearer and less liable to error.

# MEDICOPSYCHOLOGICAL WORK IN COURTS.

WILLIAM HEALY, M. D.
Director of the Psychopathic Institute of the Juvenile Court.
CHICAGO, ILL.

Medicopsychological work in courts is founded on the common sense necessity for accurate diagnosis and prognosis, preceding rational treatment. Now the prescribing of treatment, social treatment, is just exactly the business of courts which deal with offenders. A thoughtful jurist who came to observe and study said to us several years ago, after we had collected the earlier data which formed the first work of the Psychopathic Institute of the Juvenile Court, "I see the point: I am a therapeutist. Yet I am working in a blind way without diagnosis." He went back to Seattle, quickly established in his court a definitive department of diagnosis, made a physician his chief probation officer, and insisted that all cases which came before him should be accompanied by such medical, psychological and social data that he might have a chance to adjudicate the case properly. Judge Frater thus discerned the essential fact that advancement in court work must be along the lines that have characterized all scientific achievement, namely, the study of causations. In medicine this is called etiology and diagnosis.

Since then there has been a great awakening on this subject and a number of courts in this country have fallen in line. It should be thoroughly appreciated that the newer development of court procedure with offenders involves not only prescribing social treatment, but also the definite carrying out of therapeutic measures. The probation system is the most wide-spread evidence of this fact. The best illustration, probably anywhere, of the modern therapeutic endeavor of the court is to be seen in the remarkable organization of the justly celebrated Juvenile Court of Chicago. Judge Pinckney, with wise appreciation of the valuable service which science can offer to the law, has been steadily developing the practical idea of really understanding and properly treating individual delinquents.

With development of these better understandings many remedial agencies have been set at work. In the Detention Home the wards of the court profit by the daily attentions of a physician, dentist, a corps of teachers, an instructor in physical training and resident nurses. The court sends to the best specialists all cases of defective vision and the many other ailments which need attention. It obtains country life for many of those who need it. It runs a definite employment agency which endeavors to place the individual at work for which he is specially fitted. It aims to place in proper institutions those who are afflicted. Above all, it endeavors to co-operate with relatives and awaken them to the needs of their own kin. So it has come about that in the sessions of this court one may hear considered the correlations between defective vision and failure in school or in employment, which, of course, lead directly to delinquency. One may hear discussed the relationship of epilepsy to moral unreliability, of the effects of various debilitating habits upon producing mental instability or lethargy, or the connection between mental defect and criminality. All these, and many other things, should be considered by officers of a court, as well as the more obvious effects of bad companionship, lack of parental control and other weaknesses in environmental conditions.

Judge Pinckney writes little and talks little, but works incessantly towards the end of rendering solid constructive service to both the state and the individual by looking after anything which may be logically considered to be a source of the tendency towards offense. I may quote a few words from his last report: "The responsibility of the judge is grave enough when all that investigation, experience and science can tell of the physical, mental, moral and spiritual sides of the delinquent is made known to him. Nothing short of a complete understanding of the actual facts in each case in so far as it is possible to know them will satisfy the conscientious Judge."

Now, although we all know the greater importance of bending the twig than of trying to shape the already inclined tree, let no one suppose these considerations of diagnosis and therapy have nothing to do with courts for adult offenders. Medicopsychological work, properly carried out, has far more fundamental values for society than mere consideration of the legally cherished, but often insoluble problem of responsibility. There are very many constructive measures which may be carried out.

This brings us at once to a vital phase of this

whole question of the application of scientific effort in court procedure. Here we have the chance to get eminently practical efficiency studies of the measures ordinarily carried out under the law. Nowadays it is not anarchists who are questioning legal values in dealing with offenders but it is some of the most experienced jurists themselves—none more forcefully concrete in their statements than Justice Rhodes of England, who wrote in the *British Medical Journal* asking what it could mean that of 180,000 convictions in a given year over 10,000 had been convicted upwards of 20 times before. It is an extremely remarkable fact that one may look in vain for studies emanating from any court or any jurist concerning the data of success or failure of measures carried out. Years of following up cases are of course, necessary, but nothing can be worth any more in the light of the vast expense which criminality is to society, causing an expenditure of from two to four million dollars a day in this country. Now, no studies of outcome can be valuable which are not based upon earlier diagnosis and prognosis—upon the essential predictabilities of the case. Did this given individual have such mental or physical qualifications that he could be expected to succeed under probation or parole; or could it be thought that he would be affected for the good and society ultimately benefited by his incarceration?

There can be no doubt that a considerable portion of offenders will always have to be dealt with by way of retribution and with the idea of the deterrent effect upon others in mind. But even there the diagnosis of capabilities and knowledge of the promise of the future should in all common sense be the keynote of handling the individual during incarceration. This should be done that society itself may not be the ultimate sufferer when the individual returns to it.

The actual basis of psychological work in connection with offenders lies in the fundamental fact that conduct is the direct result of mental life. Misconduct may sometimes imply aberrational mental life or primary mental defect, but there are a thousand and one influences, environmental or directly physical, which may give the impulse towards delinquency

There has been a tendency all along in the history of criminology to promulgate some given theory in explanation of crime in general. Often such a dictum has been based upon special observations made in this or that country and under this or that special situation. The result has been astounding statements concerning the relationship of various physical and mental conditions to crime. The medicopsychologist in court work who pursues the method of the psychiatrist and studies the cases by longitudinal as well as cross-section methods, comes to see the vast intricacies of causation. No part of it is simple. It practically always requires the effect of environmental influences to create a criminal out of even a mental defective. Those who will undertake studies of the offenders in the open, as Devon says all offenders should be studied, and get the background of their family circumstances and their developmental history, their heredity, their early habits and so on, will come to realize, as we have realized in our years of careful investigation, that:

1. Thorough study of criminals which includes their mental traits is altogether a new-born science. Time shows that large general statements usually have to be greatly modified in this as in other fields newly opened to research.

2. The complexities of the human mind are so great that predictabilities are not safely made upon the basis of half hour studies of the individual. One comes to know many cases which demonstrate the unreliability of prognoses made according to large categorical valuations.

3. Short cross-section studies, then, are not enough in the vast majority of cases to answer the problems which the courts need answered.

4. A significant class of delinquents is the mental defectives, but even among them are great individual differences in regard to capabilities. Those who grade on the same age level according to the newer methods of measurement may be adaptable to widely varying conditions. A larger variety of tests will bring out these differences. After one has witnessed such cases as that of a feeble-minded burglar, a fellow with a long record and with great manual dexterity, succeed as an honest man in country life where he could use his special talents, one becomes less sure about many dicta.

5. Because a great share of those who are caught are mental defectives is no sign that anything like the majority of crimes are committed by the feeble-minded. The bright offender, we

find, may have fifty crimes to his record before he is captured, where the moron, on account of his lesser astuteness, is easily recognized and apprehended after perhaps a single offense.

6. If the causative factors are fair-mindedly studied out, one finds vast sources of the trouble in parental life, or in other surrounding conditions. Among the parents of 1,000 cases of young repeated offenders carefully studied, 31 per cent were found to have at least one parent more than a moderate user of intoxicating drinks. Immorality, quarreling, poverty, broken-up families in 67 per cent of the cases were factors. The lack of healthy mental interests was an astonishingly large source of trouble, as was also bad companions.

7. In this 1,000 cases 7 per cent were epileptic, and in 53 other cases, where the offender was not epileptic, another member of the immediate family was subject to convulsions. 7 per cent had some form of psychosis. About 15 per cent were feeble-minded. About 65 per cent, however, had nothing discernible the matter as mental defect or aberration.

8. Physical conditions causing irritations and disabilities which tended toward delinquency by influencing the mind in this or that direction were contributing factors in at least one-third of the cases. Sensory defects occupied an important place in this group. Premature development, among girls especially, is a direct source of moral break-down.

9. The factors in the individual case are most frequently not at all brought out in courts where adults are tried. The disposition of the individual is most often made without any deep consideration of the needs of the offender or of society.

10. Co-operation between courts and other public institutions is astonishingly small. What was known of the individual in other cities, or in a given institution, or even in another court in the same city, is rarely brought forward in the case. Indeed, in most courts there is no attempt to make or preserve a record of the case in any such way as might lead to better understanding of him in the future.

11. The difficulties of ascertaining the efficiency of this or that given type of procedure under the law are, through all the above circumstances, very great without the introduction of some scientific method. It is time that such was begun by courts everywhere.

The medicopsychologist must take the ground of studying the whole individual and the causative factors of his career. Here is John Doe under arrest. One must find that he has (1) such-and-such physical characteristics, including both his special abilities as well as disabilities, and (2) such-and-such mental qualifications, disabilities, aberrational tendencies and general traits; (3) he has committed such-and-such types of delinquent acts; (4) in the background there are such-and-such conditions of heredity, physical development, traumatism, early teachings of immoral conduct, bad personal habits, lack of educational opportunities, and so on; (5) then in the light of the offender's being what he is physically and mentally, and having this given background, on the basis of easily knowable predictabilities something like a justifiable prognosis can be offered if such and such treatment is afforded under whatever environment may be available.

Such are the possibilities of medicopsychological work in courts. The whole study is to be directly aimed at predictabilities, just such as the court should wish to know, and conclusion cannot fairly be reached without knowledge of a great many of the various capabilities of the offender and of whence arose the tendency to delinquency.

If judgments of courts are to be ruled by reason, then the science which explains tendencies and actions will play a large part in rendering more efficient the whole legal and penal procedure.

DISCUSSION.

Dr. Munro: There was so much in the paper that is valuable I certainly could not discuss it without careful study.

Dr. Williams: I confess I have entertained ideas contrary to those advanced in the paper. I want to confess having particularly to do with the insane and more with the insane criminals, having to do with the individual confined to the reformatory and seeking to be transferred to an institution for the insane. I realized I was not dealing with the offenders such as those individuals dealt with in the paper, but I will say I enjoyed the paper and I know that the deductions from the paper can be but beneficial.

Dr. George Bliss: It is an interesting subject, but I am working with the feeble-minded. There is just one point that seems to me of some importance in this matter, that these feeble-minded individuals, the criminal who repeats again and again his offense as compared with the criminal who makes a mistake

or a slip and is accorded another chance and makes good. It seems to me there is a marked distinction between them and there is a point that I do not believe we bring out enough in our discussion of the defect of the criminal. The hospital criminal who offends again and again is, in my opinion, very frequently defective. He does these things because he is defective.

Dr. Crohn: There is one feature of the paper that appeals to me particularly, because of its practical tendencies. It is a paper from a laboratory man. I find there is a difficulty in the actual examination of prisoners such as I meet in the county jail and elsewhere, problems that are not exactly met with by the laboratory methods. I am not disposed to criticise the laboratory methods, but rather the tendency to make justifications or conclusions, thinking that they will fit these specific cases. There is no general rule by which any man became a criminal. His case is distinctly individual and you cannot draw these conclusions from laboratory tests and make them fit the solutions that you have to meet with.

Dr. Healy (closing): I really have nothing to say because I agree with everything that has been said and all the points that have been made.

---

*Thursday, July 16, 9 A. M., Hotel La Salle.*

Chairman: Meeting is called to order. The chair will take the privilege of inserting a paper that inadvertently did not get on the program.

---

## RE-EDUCATION OF THE ATTENTIVE CONTROL.

G. Wilse Robinson, M. D.,
KANSAS CITY, MO.

Many difficulties have and are being met by those who are endeavoring to rationalize psychotherapeutic procedure. The two difficulties which are the hardest to surmount are its supposed simplicity on the one hand and its reputed complexity on the other. Many physicians believe that nothing new has been recently discovered relative to the treatment of disease by mental means. A small group assert that psychotherapy constitutes a special branch of medicine and is so complicated in its application that the general practitioner cannot understand and use it. Both of these groups are in error. No physician can successfully use this therapeutic agent without some training, but the method has been so far rationalized within the last few years that it can be used now with scientific accuracy in overcoming many abnormal and distressing conditions; and if properly applied will be found as exact and as definite in its action as any other therapeutic agent.

Many physicians fail to recognize the very great importance of the subjective factor in medicine. It is certainly occupying a position of greater prominence in disease today than ever before. Even the simple neuroses often have a mental cause in the life of the individual which is just as potent as has been the physicial cause in the production of a heart murmur. This failure to recognize the mental cause has greatly increased the difficulties of treating these conditions. We should, in so far as we are able, determine the exact cause of the condition which we are called upon to treat. After we have determined the potent etiological factor, whether it be mental, physical or both, we should neglect neither in the application of our therapy.

Many practitioners, finding upon examination no physical cause for a disease, will advise the patient that there is nothing the matter with him, that his condition is entirely imaginary and he should straightway forget it. The patient may already know that his condition is imaginary and he wants above everything else to forget it but that is just what he cannot do without intelligent aid and that may be why he has consulted his physician.

The physician has not done his duty who does not search the mind of the patient in appropriate cases for the source of his discomfort in exactly the same spirit in which he searches the body of the patient for the source of other discomforts. This procedure is not very complex and requires no great amount of special training on the part of the practitioner.

The method of procedure is somewhat as follows: First, ascertain and estimate the physical causes, then investigate and determine the mental attitude of the patient toward his ailment. This can generally be best accomplished by permitting and encouraging the patient to tell his complete story rather than by a primary process of interrogation on the part of the physician. In this manner the patient's false point of view, which has led up to the neurosis, is usually revealed.

The physician should then attempt to explain why such a series of events or affects could and might produce the effects that obtain and having to the fullest possible degree impressed the patient with the correctness of the physician's point of view the process of re-education begins.

This is accomplished by carefully explaining to

the patient the correct way to mental health, emphasizing his previous misconceptions and endeavoring to establish more rational mental adjustments. There is generally a tendency on the part of a neurotic patient to exaggerate and overestimate his subjective sensations. This tendency induces many physicians to make a diagnosis of mere imagination, then advise the patient to forget it and dismiss the matter as being of no importance. They fail to recognize that there is a psychic factor which is responsible for the undue inflation of the subjective value of the sensory experiences.

One of the most common mental factors in the production of the neuroses and the neuro-psychoses is the loss of the power of attentive control. In our scheme of school education, attention is of paramount importance and the child who finishes his school work without having an adequate degree of attentive control had just as well have stayed at home; and will perhaps later in life have to receive a course of re-education from the judge or the physician.

Dr. H. Crichton Miller states that the attentive control is the one aim of all true education, but our educational system is dealing with it less successfully now than previously and that when failure of attentive control manifests itself in later life, as in ill health, it falls to the physician to correct it. The number of persons who manifest a loss of attentive control is increasing at an alarming rate. In practice, these patients are known as neurasthenics, psychasthenics, hysterics, anxiety neuroses and some of the obsession psychoses. The symptom is much the same in all. The patient is a victim of indecision, he cannot make up his mind on any subject, he has lost the power of mental concentration, he has lost his will-power and in many instances his mind seems bound with unbreakable chains to one particular idea. Many patients are made miserable because of their inability to accomplish the work which they have been daily doing and by the fear of failure. This combination of symptoms is responsible for many business and mental breaks. Others are absorbed in an idea of ill health. Their minds constantly dwell upon this idea and no other seems to make any impression. A fear of insanity and the thought ever present that they are going insane destroys the happiness, impairs the mental and physical capacity of a very considerable number. There are many other types too numerous to mention. With all of them the loss of attentive control is the most insistent and prominent symptom and when they regain the power of attentive control, their health is most commonly restored.

Some considerable discussion has arisen as to the nature of attention and its relation to the will power. With modern psychology there is a tendency to use attention and will power synonymously.

Huxley defines the aim of all true education as follows: "To enable us to do the things we ought to do, when we ought to do them, whether we like them or not." I would supplement that definition by saying, that the aim of all true education is also to enable us to think the thoughts we ought to think when we ought to think them whether we like them or not.

Munsterberg says: "Mere learning is no substitute for training of mental energy. Habitual rushing to new and ever new impressions may easily interfere with the development of persistence in character. Whether the will is allowed to start on one thing and then to be pushed to something else or whether it is forced to hold on against all difficulties makes the difference which counts for life." "An education which spoils the mind and never demands real effort, which simply follows the likings and interests, leaves the adolescent individual in a flabby and ineffective state." On the other hand the training of attentive control insures strength in any sphere, even though the gift be small. The mind that has learned to resist distractions, can hold its own in any field."

Aiken says, "I would define education, moral and intellectual, as attention." All classes of temperament and persons do not require for the execution of their work the same amount of attentive control.

The artist's and poet's work does not require voluntary attention as does the work of the lawyer, doctor, the teacher. If the artist controls his associating mechanism with the same degree, he cannot produce good and inspired work. The artist and poet alike generally have so little control over the range of their consciousness that they are very commonly the victims of moods, of obsession and of phobias. A development of their

attentive control might make them better citizens but would perhaps spoil them as artists or poets.

Dr. H. Crichton Miller classifies the views of attention offered by modern psychology under two headings, descriptive and explanatory theories. Descriptive: first as motor, second as sensory, third as sensori-motor. Explanatory: first as facilitation of ideas, second as inhibition of ideas, third as both.

Ribot is the champion of the motor theory. His view is that the muscular accompaniments constitute attention plus the objective side, that is, the state of consciousness which results. He says our only possible conception of the will is our idea of the action of the voluntary muscles. McDougal, Stout and others criticize this theory as not being sound. The sensory description of attention as expressed by Marillier is as follows: "A state of consciousness which is the result of temporary predominance of one representation over the moment or over the representations which are co-existent with it at any moment." According to this description the original sensory excitement is reinforced by sensations caused by the muscular changes which are themselves the result of the first excitation. Neither of the above theories are satisfactory. The next definition of attention as a sensori-motor phenomenon as laid down by Wundt, Waller, Kulpe and others is much more acceptable. It is sensory in its contents, motor in its manifestations and sensori-motor in its processes.

As stated above the explanatory theories of attention are also three. The first of these theories, the one of facilitation of ideas, is advanced by Muller and others. Muller states that attention reinforces its object in three ways: first, adaptation of a sense organ; second, facilitation of apperception corresponding to stimulus in central nervous system; third, recollection of similar ideas previously experienced. This theory does not take into consideration a well known fact that the mind also has power to inhibit ideas.

Wundt goes to the other extreme and emphasizes entirely the inhibiting of attention. He divides the process into two essential and two non-essential factors. The two essential are: first, increase of clearness of definite ideas or groups of ideas accompanied by the feeling which is characteristic of the whole process from the beginning; second, inhibition of other available impressions or memorial images. The two non-essential factors are,—sensation of muscular strain with the sense feelings which belong to them and which intensify the primary feeling; second, the intensification of the sensory contents of the apperceived idea by these strain sensations through the medium of associated co-excitation.

Wundt defines the lumen of intensity as equivalent to the threshold of consciousness. That is, we perceive only what rises above the level. The limen of clearness as equal to the threshold of attention; that is, we apperceive only what reaches this high level. The second of the so-called essential factors, the inhibition of all impressions and memories excepting those attended to, he has associated with the frontal lobes, the so-called apperceptive center. Munsterberg and Bastian have criticized him for attempting to create a faculty of attention and of locating it in a definite region of the brain. Wundt has replied that there is no attention as such but only ideas attended to and changes in ideas which constitute our attending are accompanied by a physiological process primarily in the frontal lobes.

The third explanation of attention is that advocated by Exner. He considers it to be a combination of the facilitation and inhibition of ideas. He compares inhibition with reflex action or the inhibition of a reflex response by the action of a higher center. This theory is certainly the most appealing of the three explanatory theories. Munsterberg regards attention as an act of will. The entire process being dominated by the end in view which is bringing more vividly and clearly the given content into consciousness, or, in accordance with his theory every act of will is an act of attention, in that the mechanism of a voluntary act is not conscious but is made possible by the apperception of the idea aimed at. From all these views, mutually antagonistic as some of them are, Miller has deduced the following points: first, from the physiological standpoint the process is sensori-motor; second, from the psychological standpoint it encourages the facilitation of one idea with a corresponding inhibition of others; third, the limen of intensity is distinct from the limen of clearness; fourth, in practice we may regard attention and will as equivalent.

A discussion of these various theories now leads

to a consideration of the practical bearing of attentive control on subjective symptoms, from a therapeutical standpoint. It must be obvious to us all that the power to facilitate an idea is proportionate to the power to inhibit other ideas. The more absorbed we become in our work and our studies, the less attention do we give to subjective sensations. If we keep the limen of clearness high we do not apperceive a competing idea. But if the competing idea is constant and insistent, its apperception is obviously dependent on the amount of interest which we are able to maintain in our work. The question of pain and pleasure in relation to attention is an important one. Sully regards all interest as an affect of attention while Stout asserts that it is merely the result of attention. Sully's view appears to be sound. Attention may imbue an uninteresting act with interest. This really is what we desire to cultivate in our neurotic patient; the power through his attention of being able to determine his own area of consciousness and that with the least amount of effort. His greatest difficulty is that his imagination keeps his threshold of consciousness so low as regards his organic sensations that some stimulus, abnormal in character, is constantly entering his consciousness and constituting a suggestion. Miller also makes a distinction between concentration of the attention and mere fixation. Fixation he considers to be one of the essential conditions of going to sleep. The mind that gives itself up to an endless pageant of ideas represents one of the best known types of insomnia. Concentration is not compatible with sleep. There is spontaneous or involuntary attention as contrasted with concentrated or voluntary attention and many insomniacs oscillate between a vacuous condition of spontaneous attention and a state of connected and concentrated attention.

The more practical part of this paper is that which discusses the methods employed in the re-education of the attentive control after its loss has been demonstrated. The two oldest and perhaps best known methods are relaxation, and rhythmic breathing. I shall discuss briefly their psychological significance. Relaxation of the body, implies cessation of any voluntary muscular movement. In the first place it stops the numerous outlets of nerve energy and in accordance with McDougal's theory allows nerve potential to rise for use in the direction desired. When our attention is intensely concentrated voluntary movements are inhibited. In order that this condition may obtain, our attention at first must be of a voluntary or concentrated type. Voluntary movement is inhibited and we attain to the relaxed bodily condition which favors voluntary attentive control. Munsterberg explains it as follows: Suppression of opposing movement secures inhibition of interfering thought. Shiftless minds are more directly forced into service by systematic control of motor response. Its application begins with motor activities or even control of motor activities are reinforced in such a way that they themselves enter into the center of attention. The technique of relaxation is so simple that it does not require deep explanation. Rhythmic breathing is another very old and well known method of developing psychic control. When we give no attention to our breathing we breathe rhythmically and with a fairly constant rate. If we desire to change the rate and rhythm which are normally automatic and involuntary, we must give the subject our undivided voluntary attention for just as soon as we neglect to do this we immediately renew our normal rate of rhythm. Various methods have been suggested in connection with this procedure, breathing a certain number of times per minute, breathing rapidly for a given time and then slowly for a like period; breathing regularly and rhythmically for a period of time or for a certain number of cycles and then interrupting the breathing for a given time. Any of these methods or other variations require voluntary or concentrated attention for their execution and will be found of much value in the re-education of the attentive control.

The following methods which are somewhat more complicated have been suggested by Miller for the same purpose. He differentiates between exercises which aim at holding the attention with a minimum of effort and those which demand effort. The former he considers to be useful to prevent introspection to raise the threshold of consciousness for the time being. The latter are more educative in their aim. The scholar who has broken down after over-work who is capable of controlling and even abusing his attentive powers, does not require a re-development of attentive control, but should be prevented from introspection. For him light literature, games of

patience and jig-saw puzzles are useful. For the leisurely society woman who has never concentrated her attention on anything more serious than a tango tea or a comedy, exercises requiring more effort of concentration should be advised.

The following methods are given in the order in which they demand concentrated effort beginning with the easiest:

First, pointing with the outstretched leg or arm at a given mark. Those who co-ordinate well will find this exercise easy, those who do not will find it more difficult than they anticipate.

Second, balancing is a very similar exercise. This exercise becomes involuntary and decreases in value with practice. A stick balanced on the finger or head are the customary procedures.

Third, letter games (word making) can be made useful and interesting by introducing the element of speed.

Fourth, reading a book up-side-down is a useful exercise but the time required to read a given number of lines should always be determined. If the exercise is receiving the attention of the patient, the time will be shortened with practice.

Fifth, writing with two hands is an exercise of value and the obvious improvement with practice will encourage the patient. Writing or drawing with the eyes fixed on a looking-glass in which the paper is reflected is much the same.

Sixth, describing accurately an object or picture which has been examined for a limited space of time develops the powers of observation and the memory.

Seventh, detailing a number of articles, say twenty, exposed for a short time is an exercise in which memory counts for more and observation for less.

Eighth, counting with the eyes fixed on a given spot, say counting up to a hundred slowly without moving eyes or lips, at the same time without allowing a single extraneous thought to occupy consciousness for a moment.

Ninth, following with a pin the second hand of a watch, is a good exercise.

Tenth, this exercise is recommended by Munsterberg, Muller and others as being of great value. It consists of striking out of a given vowel from a column of a newspaper. The exercise should be carried out with a view to three points: first, accuracy; second, speed; third, ignorance of contents. Columns of equal length should be given to the patient every time. Speed and accuracy should be noted after each test so that the improvement may be determined.

Vittoz in his most valuable work suggests the following five classes of exercises for concentration. First, the symbol of infinity or the figure one; second, the ticking of a metronome; third, the tactile sense; fourth, affected parts of the body; fifth, ideas. The above exercises must be used intelligently and adapted to the individual patient and his environment.

Conclusions.—Psychic factors exercise much influence in the development of many neurotic conditions and should be searched for as carefully as physical factors. In many of these conditions the threshold of consciousness is lowered to such a degree that concentration and fixation of attention is impossible, and the patient has lost the power of inhibiting subjective sensations and unbidden ideas. The most successful method of correcting these abnormal conditions is by a process of re-education of the attentive control. This can generally be accomplished by proceeding along the lines as suggested above.

937 Rialto Building.

DISCUSSION.

Dr. Lindsay: These practical things are the things most useful, whatever we may do to aid in restoring this class of very unhappy people. Many of the things the doctor mentioned we ought to make use of.

Dr. Williams: I enjoyed the doctor's paper, "The Re-Education of Attentive Control," very much. I think the doctor would have mentioned many other points if he had the time. The occupational industries offer also a method of educating this control, and we know it is one of the most practical of treating a large percentage of our patients in mental diseases.

---

## PREVENTION OF EPILEPSY.

O. S. Hubbard, M. D.

PARSONS, KANSAS.

Although the subject of this paper is the prevention of epilepsy, a few words bearing on the importance of the disease may not be out of place. The general public has little conception of the prevalance of epilepsy; even the members of the medical profession fail to realize the large number afflicted by this disease.

No very accurate statement as to the number of epileptics can be made as only a small per cent. receive institution care and those at home are to a great extent kept out of public view; however, we know that the number is large. Church says, "It is statistically proved that there is more than one epileptic for every four hundred of the population in this country."

Spratling in his work on epilepsy endorses Peterson's estimate of the ratio of epileptics as one to five hundred. He adds, "I do not feel that this statement is too high, indeed it is scarcely high enough."

Turner, the eminent English authority, says, "In Europe and the United States the approximate ratio of epileptics varies from one to three per one thousand of the general population."

The population of this country is nearly if not quite one hundred million, which would give an epileptic population of two hundred thousand. This is about the number of committed insane in institutions in the United States. To be conservative let us reduce the number by twenty-five thousand and say that we have one hundred seventy-five thousand epileptics in this country; as an abstract fact this is somewhat hard to comprehend but by comparison it may be made more concrete. The state of Wyoming now has an estimated population of 168,000; Atlanta has 179,000; Omaha has 133,000; Spokane has 135,000.

Think for a moment of Atlanta with its present population gone, it could almost be repopulated by our epileptic citizens.

The Report of the Committee on Mental Hygiene gives some forceful illustrations to impress the number of committed insane in this country. As these illustrations apply equally well to epilepsy two of their statements are repeated here.

"The officers and enlisted men in the United States army number 82,365, in the navy 50,476; in the Marine hospital corps 9,854; making a total of 142,000. At least 30,000 less than our epileptic population."

As a further comparison it is stated in this report that the students in colleges and universities in the United States number 184,000; we could almost fill their places with our epileptic citizens.

Chicago's population is estimated at 2,400,000; more than 4,000 of them are epileptic.

Having shown the size of the problem the natural thing is to ask, What can be done about it? Cures in epilepsy are infrequent, especially after the disease has existed for a period of years, therefore prevention is of paramount importance.

Practically all authorities agree that heredity is a large factor in the causation of epilepsy, a few writers contending that almost all epileptics are of defective stock.

Starr says, "Heredity is the most potent predisposing cause." Gowers gives forty per cent. of cases as due to heredity; Spratling says fifty-six per cent.; Turner in a study of private and hospital cases found heridity in fifty-one per cent. Church states that "Heredity plays a very important part in the causation of epilepsy." Vorkastner says, "In the overwhelming majority of cases it is a hereditary, constitutional, neuropathic predisposition on which epilepsy develops."

Krapelin in one of his clinical lectures declares, "Defective heredity is the most frequent predisposing cause of epilepsy.

The statistics of the Kansas State Hospital show that in about forty-five per cent. of the admissions no cause could be ascertained, largely due to defective histories in chronic patients; that the disease in twenty per cent. of the whole number admitted was probably due to heredity, or if based on the number in whom a probable cause could be determined the percentage would be nearly doubled.

Studies by Weeks, Davenport, Rosanoff and others tend to show that epilepsy is a Mendelian recessive, closely related to feeble-mindedness and other nervous conditions or that these conditions occur because of the lack of some factor which determines nervous stability.

If Mendel's law does hold for epilepsy and the proof while not wholly convincing is strong, we can understand the tremendous importance of heredity as a cause of epilepsy. Observers tell us that the children of two distinctly feeble-minded persons are always feeble-minded and those of two epileptics in whom the disease is not acquired are always epileptic or feeble-minded; this would be according to Mendel's law that recessive always breed true. Some dispute this statement but it at least comes very near the truth.

With the unquestioned importance of heredity

as a cause of epilepsy the theoretical means of prevention need little discussion.

Briefly, we should stop it at the source! The practical solution is far different. Education is one of our chief means of effort, often unappreciated, misunderstood or even resented, nevertheless it should be continued. Let the people know the truth and some will profit by it.

Segregation is desirable for most epileptics but as yet can reach only a small number. Illinois with ten thousand epileptics, after years of waiting has at last made a start towards an epileptic colony.

To properly segregate the epileptics of Illinois there should be at least five colonies; from the standpoint of cost to this generation this is impractical.

From the standpoint of prevention epileptic women of a child-bearing age should be segregated first.

Sterilization as a means of prevention is theoretically desirable but probably will not be practical as a method of prevention for many years to come, certainly not on a broad scale.

At this time there is no general or effectual sterilization in this country and except at the Indiana Reformatory there never has been.

Some laws have been passed bearing on this point but they have been so surrounded with restrictions and involved in questions of constitutionality as to be altogether useless. Until our ideas of personal liberty and the sanctity of the reproductive function change it is idle to hope for much from sterilization. Further, if epilepsy follows Mendel's law, the impure dominant would appear as a normal individual and could not be sterilized while he would carry the possibility of transmitting epilepsy.

One rather effectual remedy remains, a strengthening of the marriage laws so that it would be very difficult for an epileptic or other defective individual to marry. Of course this would not prevent irregular sexual relations but special laws protecting epileptic and feeble-minded females might be secured together with close segregation for sexual offenders of both sexes.

Speaking of the marriage of epileptics the superintendent of the Kansas State Hospital says in a biennial report:

"Of the total number of male patients received during the period who had attained the age of twenty-one years at the time of admission 30 per cent. had been married and of the females eighteen years of age 56.8 per cent. had been married." Such conditions suggest the need of different marriage laws.

Before discussing the next causative factor it may be well to reiterate that heredity is the great cause and until methods are devised to stop procreation by the unfit society's burden is certain to become heavier as defectiveness, including epilepsy, is increasing faster than the general population.

A second cause of epilepsy and one in which prevention is important comprises those conditions known as infantile cerebropathies. This cause has not been recognized as fully as its importance deserves. In a series of patients admitted to the Kansas State Hospital during a recent biennium over 14 per cent. of those admitted and 25 per cent. of those in whom a probable cause could be determined were epileptic because of an infantile cerebropathy. Some of these cerebropathies are birth injuries due to prolonged labor or instrumental delivery, perhaps some are even prenatal. Obstetrical forceps are a useful and necessary part of a doctor's equipment but their improper and careless use is responsible for many a case of imbecility and epilepsy. A few patients in whom fright in infants or young children have produced cerebropathies are suggestive. In one case under my observation the fright induced by the noise of a charivari party caused a severe convulsion in an infant in arms, followed by a pronounced hemiplegia and epilepsy.

Prevention means in such cases better care; the simple and not the strenuous life for infants and children, particularly nervous children.

A very common history in infantile cerebropathies is as follows: A healthy baby, when about a year old gastro-intestinal disturbance often due to eating freely of improper food at the family table, a severe, prolonged convulsion, usually with high fever, which is attributed to worms, a slow convalescence followed by some permanent muscular weakness; after a period, petit mal attacks followed by grand mal. Probably many lesions occur in parts of the brain

which do not directly affect muscular development and so are not recognized as cerebropathies.

The pathology of these conditions is disputed, certainly many are infections, some are vascular, probably many, perhaps most of them come in those who by heredity are predisposed. Oppenheim holds strongly to this idea. Better obstetrics means fewer birth injuries; better care of young children, especially as to diet, means fewer infantile convulsions, both of which mean fewer epileptics in later life.

In this connection head injuries in older persons should be mentioned. In this mechanical age head injuries are common. Nearly every epileptic has a history of some injury which usually has no significance, but there are a large number of people who receive severe head injuries, such as depressed fractures and later develop epilepsy. After the disease is established operative measures may relieve but the outlook is uncertain. Every depressed skull injury should receive prompt surgical treatment as a means of preventing epilepsy if for no other reason.

Syphilis and alcoholism play a considerable part in the etiology of epilepsy. Cases of epilepsy developing during the secondary stage of syphilis have been reported. That it is a factor in the causation of senile epilepsy is unquestioned. In the Kansas State Hospital are several patients with congenital syphilis, the fathers of two of these children dying in other institutions of paresis. It is probable, however, that syphilis as a cause has been overestimated.

Lastly we may consider among preventable epilepsies those which originate in the declining years. The popular teaching has been that senile epilepsy is an unusual condition; I believe that its frequency has been underestimated. About two years ago, impressed by the number of epileptics advanced in years and by the extreme difficulty in caring for them, I gave special attention to this condition, studying the first one thousand patients admitted to the Kansas State Hospital. Since that time two hundred-fifty more patients have been admitted. Among these one thousand two hundred-fifty patients have been exactly fifty whose epilepsy developed after fifty years of age, just 4 per cent. of the whole number admitted. If we deduct about fifty patients from the whole number admitted who were not epileptic our percentage would be even higher.

This percentage is quite unusual: Turner, Spratling, and Gowers report a decidedly smaller percentage.

My list may be reduced by eliminating a few patients in whom the diagnosis is questionable, and also by allowing for inaccurate case histories, but even with these deductions the number of genuine senile epileptics remains remarkably high. Nearly all these people were personally known to me; at least half of them gave the impression of being above the average in natural endowment, a considerable portion having been well to do and respected citizens.

What I wish to bring out is that these patients were not degenerates nor defectives, but had been active and useful citizens who in their declining years became epileptic and in most cases insane.

The average age at which the epilepsy developd was a little over sixty-two years. Most authorities tell us that senile epilepsy is usually due to syphilis; perhaps this is one of the statements which have gotten into books and have been taken on faith; while laboratory tests were not made in these patients there were no clinical reasons to suspect syphilis in most of them. A few were alcoholic, several had suffered an apoplexy, but most of them were plain, hard-working people. Most of them had vascular or cardiac disease. I do not believe them syphilitic, I do believe that the pathological condition in most such cases is a cerebral arteriosclerosis.

Prevention, then, means the prevention of arteriosclerosis, a problem only partially solved. Most authorities agree on a temperate, moderate life with the avoidance of excesses. Perhaps Metchnikoff's sour milk treatment has a great deal of truth in it. What I wish to assert is that the number of senile epilepsies has been underestimated and that the prevention of arteriosclerosis will prevent a considerable number of such epilepsies.

In closing the following points may be summarized:

1. In the United States there are at least one hundred seventy-five thousand epileptics, a number about equal to the population of the state of Wyoming or the city of Atlanta.

2. Heredity is the GREAT CAUSE.

Theoretically we should stop it at the source by sterilization; practically we must look to three measures:

a. Education.

b. Laws restricting marriage.

c. Segregation, especially of females.

3. Infantile cerebropathies are the cause of many epilepsies; better obstetrics and better care of young children are sorely needed. Prompt surgical care of head injuries is extremely important.

4. Lastly, I wish again to emphasize the importance of senile epilepsy and of senile insanity, not epileptic, believing that these conditions are largely due to arterial brain changes and are to a considerable extent preventable.

---

## THE EPILEPTOID CONVULSIONS IN ALCOHOLICS AND THEIR RELATION TO GENUINE EPILEPSY.

DR. EDWIN W. KATZEN-ELLENBOGEN,
State Hospital.
TRENTON, N. J.

The convulsive phenomena in chronic alcoholics were observed by many writers and clinicians; while some of them claimed all epileptic phenomena for the domain of genuine epilepsy others thought those convulsions clinically distinct from those of epileptics.

In our work on alcoholism in its relation to insanity we analyzed also our clinical material and data as collected in the State Hospital in Trenton in regard to convulsive phenomena in alcoholics. There is no doubt of the relationship of alcoholism to various convulsive phenomena in the life of an individual, not mentioning the fact of the toxic influence of alcohol upon the germplasma, thus upon the life of the following generation.

We must distinguish the following possibilities of interrelation:

1. Epileptoid convulsions starting in mature life of a chronic alcoholic following an alcholic excess and occurring only in connection with heavy drinking.

2. Epileptoid convulsions starting in mature life in a chronic alcoholic and persisting during the rest of the life in spite of abstinence from alcohol.

3. Epileptoid convulsion in connection with the onset or in the course of delirium tremens,

4. Increase of epileptic phenomena regarding frequency, severeness and after effects of convulsions in genuine epilepsy.

5. Delirium tremens or another acute psychosis as a complication of epileptic mental disturbance.

While there is no problem in considering epileptics with chronic alcoholism, epileptic convulsions, especially when they only appear in connection with alcoholic debauches, are somewhat doubtful in regard to their clinical classification. We cannot content ourselves with a hypothetical explanation of a larvant epilepsy, but we must consider each case individually and make our diagnosis respectively. The importance of such a diagnosis is particularly evident when the question of marriage is to be considered in those states in which epilepsy is legally a marital impediment.

Our clinical material of alcoholics in Trenton did not give us very many cases of epileptics. Among about three hundred there were only sixteen in which the epileptic convulsions occurred and which had a start in mature life and had either persisted or were closely connected with alcoholic debauches. In this number the delirium tremens cases with debauches were not included. Six out of fourteen present undoubtedly a ripe development of epilepsy; chronic alcoholism is a complication and exaggeration of the phenomena. Two histories as given will illustrate this group:

1. Young man, aged 28 years, father epileptic and a drinker; two other cases of epilepsy on the paternal side; one epileptic sister. First epileptic convulsion occurring at the age of six of the grand mal type about once in two months; between the ages of 9 and 12 no convulsions; at the age of 12 reappearance of convulsions, grand mal every six to eight weeks, petit mals about two to three in a week. At the age of 16 a glass of whisky taken. It was taken about a week after the last convulsion. In spite of that two weeks later one of the severest attacks since childhood followed by a mental disturbance of three days' duration. At the age of 18 regular alcoholic habits developed; two to three glasses of whiskey taken a day; the habit of intoxication increased with age; parallel to it, increase of epileptic convulsions on an average of one to two in a week of grand mal type, and five to six petit mals a day. At the age of 28 after a severe convulsion development of mental disturbance which combined the depth of impairment of consciousness, characteristic of epileptic psychosis with occupation delirium and typical delirium tremens hallucinations of alcoholism.

Death occurred in the third week of the disease, due to acute nephritis. No autopsy.

2. Man, aged 34 years, colored. Convulsions started in early childhood. His twin brother, another brother and sister all epileptic; mother and maternal grandmother epileptic. Up to the age of 22 convulsions very rare, once in four to six months, light in character—occasionally petit mal convulsions. Alcoholism started at the age of 22; the first two years without deteriorating effect; there was no increase of epileptic manifestations. For last ten years, however, there was a gradual increase of manifestations, and the convulsions averaged five or six a month. At the age of 30, during a post epileptic disturbance, assaulted another colored man and was sent to the penitentiary for four years; after two years was sent to State Hospital on account of violent attacks upon other inmates made after the convulsions. At the present time there is a tendency to a certain decrease in the number of convulsions, his mentality, however, suffered; he is greatly deteriorated.

The next two histories will illustrate another type of combination of epilepsy with alcoholism.

3. Man, aged 46 years, negro; father alcoholic, mother insane; three brothers heavy drinkers; one brother temperate but epileptic. No convulsions ever observed in the patient's life in childhood; development of alcoholism at the age of 24, with a gradual increase to practically a quart a day, several commitments to county jails and workhouses as well as institutions necessary. At the age of 38, in connection with a heavy intoxication, a severe attack described as typically epileptic; from now on frequent attacks of epileptic convulsions of grand mal irrespectively of drinking; even after three months of enforced abstinence convulsions persist; six months after discharge from the hospital died from pneumonia. A strong possibility of syphilis, suggested by Wassermann, which taken twice was, however, not typical.

4. Male, aged 26 years, family history shows only neurotic disposition and alcoholism; parents temperate; mother subject to periodic headaches. Alcoholic habits developed at the age of 22, following an unhappy marriage. Two years after the start of alcoholism first convulsion ever reported in his life occurred. From that time on, grand mal convulsions every four to six weeks; sent to the hospital with a typical case of delirium tremens; hospital residence eight weeks. Curiously enough no convulsions during his hospital stay; they reappeared, however, soon after while patient was still abstinent.

Two following cases will illustrate finally the last group: incidental epilepsy in alcoholics:

5. Female, aged 32 years, married; father heavy drinker; mother a prostitute; whole family mentally and morally low grade. Patient herself of the lowest type, a notorious prostitute, alcoholic debauches since her earliest youth necessitated many commitments to different institutions. Never any convulsions in childhood. At the age of 28, after a very severe intoxication a severe convulsion after which she was supposedly three hours unconscious. Another convulsion following intoxication at the age of 30, another at the age of 31 and 32, together four convulsions in four years, all of them in connection with severe intoxication and very grave in character followed by prolonged fainting.

6. (Private case.) Man, aged 29 years, newspaper publisher, comes from a mentally tainted family with many cases of insanity of dementia praecox type; his father mentally normal though somewhat peculiar. Patient himself decidedly of schizophrenic constitution; very heavy whiskey drinker for the last eight years; when intoxicated prone to be violent and abusive. In the last year in the interval of three months four convulsions, all of which followed severe intoxication, and which were very grave, and superseded by an hour or so loss of consciousness. Since that time practically a year abstinence and there is no return of convulsive phenomena.

The first two cases are very clear. They are typical for epileptics who through indulgence in alcohol aggravated their condition. For our purpose they are of no interest, and only teach us what we knew long ago that alcohol should be kept away entirely from epileptics.

The diagnosis of epilepsy with alcoholism (the accent on epilepsy) is easily made from the history of convulsions starting prior to alcoholism and from the family history showing epilepsy in the family.

The question of relation in the second group where epilepsy started in mature life persisting in spite of abstinence is more complicated and difficult. Analyzing practically four hundred cases of epileptics in State Village Skillman, we found that 96 per cent. of onset falls before the age of 20, and in the cases in which epilepsy appeared in later life either arteriosclerosis or syphilis was at the bottom, and we excluded them from consideration of genuine epilepsy. Among 16 cases in Trenton four were of the latter kind, which is rather a large per cent. With the exception of one case, quoted above, all started in the fifth decade of life. In one syphilis was undoubted, in another probable; all of them showed diffuse arteriosclerosis and high blood pressure. Epilepsy was not found in antecedents and only the negro had an epileptic brother.

Considering the age and possibility of syphilis we must say that alcohol is the main factor in producing alcoholic phenomena, but the fixation of this phenomena is taken up either by arter-

iosclerosis or by syphilis. The case of a young man is somewhat doubtful. It is possible that after all we deal here with a case of larvant epilepsy which would not come to the surface if not helped by alcohol. Although there is no history of epilepsy in the family the periodicity of headaches in his mother, particularly as they were described to cause fainting spells are suspicious of mild epilepsy.

In the last group the alcohol causes epileptoid convulsions only in connection with severe intoxication. Here the effect is typically toxic; in all cases the convulsions are described as being particularly severe and followed by prolonged loss of consciousness. Epilepsy was not found in any case in the family. We, therefore, claim that those convulsions have no relationship with idiopathic epilepsy any more than have uremic convulsions or convulsions due to strychnine.

We may as well dispose of the problem of epileptic predisposition. The question arises why in the large number of alcoholics only a few show epileptic phenonema. Although the presumption of a spasmophilic predisposition is tempting, neither the life of the patient nor the hereditary history give us any clues to establishing of such a predisposition. The "why" of convulsions in those patients must be left unanswered and it is probably a matter of chance, as much as a certain complication in typhoid fever, for instance, occurs in certain patients and does not in another.

To the same group belong the convulsions which appear in connection with the onset or during delirium tremens. Clinical observation and anamnesis show that there are seldom more than two during the course of delirium tremens and they are also characterized by severity, elongation, and loss of consciousness after the convulsion. In eighteen per cent of our patients suffering from delirium tremens we found that complication, and as all of them recovered it does not seem that convulsions as such make the prognosis quo ad vitam doubtful. On the other hand, if convulsions do occur in the course of the life of an alcoholic, outside of delirium tremens, they constitute a fair warning that the indulgence of alcohol has reached the allowed limit, and that from now on total abstinance is imperative.

To summarize the brief outlines we can say as follows:

1. Alcohol increases all phenonema of epilepsy in cases of iodiopathic disease, and that there is a tendency of complication of certain alcoholic characteristic mental abnormalities with other epileptic mental disturbances.

2. If epileptic phenonema occur in alcoholics in mature life and persist, they do so beyond the age of forty and are due probably to arteriosclerosis or to syphilis.

3. If fixation of epilepsy occurs in a younger age the probability of larvant epilepsy is quite eminent.

4. Epileptoid convulsions occurring in mature life only in connection with alcoholic debauches are purely toxic in character, acute in effect, and have no relation to idiopathic epilepsy.

5. The family history is a good guide in differentiation because as all cases of epileptics with alcoholism whose family history was traced showed one or more cases of epilepsy in antecedents, two other groups did not have any cases of epilepsy with the exception of a young man (case No. 4), whose mother was suspicious of epilepsy, and who probably himself was a case of genuine epilepsy.

6. Epileptic convulsions in the course of delirium tremens are not infrequent but apparently do not need to be considered as a grave complication.

DISCUSSION.

Dr. Holmes: The common opinion is that epilepsy is a hereditary, transmissible disease. There are certainly some forms of epilepsy that are not hereditary and that are not transmissible any more than an amputated leg, and it is further a fact that nobody knows whether epilepsy is hereditary or transmissible or not. The necessary investigation of the pathology of the condition has not been made and the point which I wish to make is this, that before we go on with the segregation of the epileptics, before we sterilize the males and segregate the females, it would be wise for a community with the resources of this community to make research into the causes of these epileptics with at least 10 per cent of what we propose to spend in segregation. This is what I insist upon in regard to the insane, in regard to the feeble-minded and, most of all, in regard to the epileptics.

If you have read that little article of Wellesley relatively to ancestors, you can see how absolutely absurd is this whole proposition of our ancestry. He shows that we have all got the same ancestors, and if this epileptic should be sterilized on account of his ancestry, we may have within us the same elements since we have the same ancestors and we ought to be

sterilized too. The thing which we want to insist on is this: No matter how interesting it is to the officers of the state who are getting salaries for the custody of these people and for the administration of estate and who are getting the graft, to us, the subject is one of pathology and of possible treatment and we ought not to allow our institutions to go on spending millions of money every year and spending it in the most absurd way.

Dr. Solomon: We ought to understand that epilepsy is a symptom and not a disease; just as headache is a symptom. It is simply a type of reaction dependent upon a biological reaction of the individual. We have not headache but headaches. In the same way, we have not one epilepsy but we have epilepsies. The epilepsies may be divided into two particular classes. The first is symptomatic, in which the epilepsy is simply a type of reaction, an expression of some factor which we are aware is in the central nervous system. The genuine type is simply that type of epileptic reaction. It has been falsely referred to as the idiopathic type. We ought to say genuine epilepsy is epilepsy of unknown origin. All the investigation along this line, therefore, ought to be to find the cause of the type which is referred to as original or of unknown origin. In our endeavors to get to the root of epilepsy we must look at it from the clinical, then from the anatomical, then from the pathological and finally the etiological standpoint. True, in families in which the nervous system is unstable the epileptic type of reaction is more apt to occur than in other individuals; but the epileptic reaction may occur in any body, especially as I say, the nervous defective, the nervous unstable and the genuine type of epilepsy is no doubt due to the same disorder, the same irritant to the nervous system.

Dr. Lindsay, Independence, Ia.: I think that some of the states have adopted the proper procedure to deal with this class of unfortunates. They are gradually awakening to the fact that these cases must be segregated and that they must be brought together by themselves. There are many who are free, who do not have the mental symptoms. We cannot reach those at this time but we hope to have methods in the future by which we can study their cases. The point which I wish to bring forth in particular is this: That these cases cannot be studied unless they are brought into an epileptic colony. I wish to say that we are studying these cases all the time in the asylum. We are studying them and we ultimately hope to find out just what the causative factor is, but as nearly as I am able to judge at present, we are doing all we can by segregating them and keeping them away from people who are not afflicted with this nervous trait.

Dr. O. S. Hubbard: I wish to make just one point. If there is any authority on nervous and mental diseases anywhere who does not credit epilepsy as being due to heredity in a large per cent. of the cases, I do not know that authority. Any of you who are connected with public institutions and have to interview the families of the epileptic or feeble-minded, know from your own observation that the family is defective; you don't have to get it from your laboratory tests. You only have to meet some of the family. In my mind there is absolutely no question about the importance of heredity. I believe that at least 50 per cent. of the epileptics are due to heredity.

---

## PUBLIC AND PRIVATE CARE OF EPILEPTICS IN THE UNITED STATES AND CANADA.

MR. WILLIAM C. GRAVES,
Ex-President of the National Association for the Study of Epilepsy and the Care and Treatment of Epileptics.
CHICAGO, ILL.

Epilepsy is a common disease. It is as old as written history. Its victims have suffered for ages. In dark and ignorant periods of the world even death has been meted out to epileptics, because of a misunderstanding of the nature of their ailment. This disorder is so common that most of you have seen its victims fall rigidly and violently, gradually pass into severe muscular spasms, sleep a little and then arise and walk away. This is a common type among the many types. Those who study epilepsy more closely note the changes before and after seizures—changes in the intellectual and moral nature of the victim, irritability, violence, murderous violence, untidyness, and gradual mental deterioration as the disease progresses into the shadows of the demented state.

The epileptic is dangerous to himself and to others. Often he commits most horrible and brutal crimes apparently without motive, without responsibility, and without even knowledge of the revolting acts. The seeming most harmless epileptic may in an instant become dangerous.

To himself, also, the epileptic is a constant menace. The seizure usually occurs without sufficiently definite warning to permit preparation for the attack. The patient falls like a stone, without the least possibility of saving himself, for he is unconscious. Severe wounds, burns and all manner of injuries are the result in and out of public institutions. The confirmed epileptic is apt to bear many scars as the marks of his disease.

Epilepsy also incapacitates its victim for the ordinary occupations of life. He cannot be em-

ployed in positions of responsibility. Everywhere he is barred from employment. The shock of seeing him fall and go into convulsions is too great for the sensibilities of other employes and customers. He is barred also from social intercourse with his equals. He dare not go to public meetings. Each case, no matter how slight its manifestations usually are, is apt to tear off its disguise at any moment with resulting unpleasantness and danger.

*Epilepsy Nearly as Widespread as Insanity.* The disease is far more general than is supposed. Careful census made in various places show that epilepsy is at least nearly as widespread as insanity. Perhaps it is more common. The average figures run from one epileptic to five hundred of population to one to three hundred. Take the census of the city or county you live in and see what a tremendous amount of suffering this means in your locality.

And the horror of it is that epilepsy is in a large measure a preventable disease. Heredity plays the most important role in its causation, as it does in insanity, yet our laws practically license marriage to anyone of sufficient age. Until this is changed, no great lessening of the number of epileptics can be expected.

There is a great epileptic population now living which must be treated and cared for. Their condition today is far better than a few years ago. Their needs have been studied and are generally being supplied by commonwealths and religious organizations.

*Public Care of the Epileptic.* The first special public institution for epileptics was established so recently as 1867 at Bielefeld in Western Germany. This was called the Bethel Colony. In 1886 a colony was founded in England by private philanthropy. In 1892 Ohio opened its institution at Gallipolis. From these beginnings the movement has grown splendidly. In Germany there are fifty institutions having a special provision for epileptics. Switzerland has three, Holland two, Belgium also makes provision for epileptics. England now has nine institutions of which four or five are of some size. Australia has an institution. In this brief summary reference is made to sane epileptics. Everywhere, as in Illinois, insane epileptics are provided for as insane persons and only too often the real injustice of sane epileptics confined with insane persons is met.

Following the lead of Ohio, which in its institution cares for both sane and insane epileptics, New York was the second American state to found an epileptic colony. This was at Sonyea, in 1894. This institution is for sane epileptics. Massachusetts, New Jersey, Kansas, Missouri, Texas, Indiana, Pennsylvania, Virginia, Connecticut, Illinois, Iowa, Michigan and Wisconsin have been added to the list of states making special provision for epileptics. Except for Indiana, which has a colony in operation, the states in our locality, viz: Illinois, Iowa, Michigan and Wisconsin, have just swung into line and are in the early reaches of progress toward a definite result.

In the province of Ontario, Canada, there is an epileptic colony.

There are two private institutions in the United States, one the Emmaus Asylum in Missouri and the other the Passavant in Pennsylvania.

*Massed Information About North American Institutions.* During the present year I asked ten pertinent* questions of superintendents of the fourteen public and private places on the North American Continent that have institutions in operation and out of the replies, omitting as far as possible the details, it appears that the total population on May 1, 1914, was about 7,000 patients. These institutions own about 9,500 acres of land of which about 3,900 acres are under cultivation; and the value of the land is about $810,000. These institutions have 390 buildings valued at $4,800,000, with equipment, fixtures, furniture, furnishings, etc., of a value of about $900,000, making a total property value of about $6,500,000. The per capita cost and analysis of what items go to make up that figure proved an interesting subject. The lowest per capita was $62.91 at the Hospital for Epileptics, Woodstock, Ontario, and the highest per capita cost was $248.20 at the Passavant Memorial Homes for the Care of Epileptics at Rochester, Pa.

During the last two years the number of new institutions authorized was four, increase of 36 per cent which is encouraging.

Indiana, Virginia, Texas, Connecticut and On-

*The questions and briefs of the answers appear in a table accompanying this paper.

tario were reported as having laws that give institutions the power of custodial detention over patients. New York, Massachusetts, Ohio and Kansas have that power over insane, or dangerous, epileptics, New Jersey reported broader powers. Pennsylvania and Missouri answered the question in the negative.

Conservatively estimating that there is one epileptic to each 400 of the population of the United States and Canada, there are 250,000 so afflicted among our 100,000,000 souls, and suppose that one-half of these, or 125,000, need care in special colonies, then indeed the fact that we are so caring for only 7,000 shows the great need of a campaign to create epileptic colonies.

The reasons which are given in the foregoing are sufficient to prove that the epileptic is best off removed from ordinary society. It is a strange yet fortunate thing that epileptics are remarkably sympathetic to the needs of each other and the devotion with which one epileptic will watch another through a seizure, safeguarding him so far as possible, is often beautiful to see. This is another of the many reasons which make it desirable that epileptics live together.

*Causes of the Disease.* Medical science has as yet failed to discover the cause of the disease, probably because each case is a problem in itself. Cures are not numerous. Segregating epileptics in special institutions has contributed much to our knowledge of the disease and has advanced especially our knowledge of the symptomatology and treatment of the condition.

Where a few years ago, the epileptic was stupefied with sedatives and made to live a living death, now, under colony regime, sedatives are used as little as possible and an effort is made to find the best treatment for each case. Strangely enough, the same agents which are so beneficial in combating tuberculosis are of the greatest benefit in these cases. Work in the fresh air and good, wholesome and carefully chosen food are better than medicine. Colonies with their large farms provide these to advantage and are thoroughly proven to offer the most satisfactory method of treating and caring for individuals suffering from this disease.

Segregation in special institutions has another great advantage. It prevents the propagation of the disease by the marriage and intermarriage of epileptics. The great advantages of this are lessened in some states by the fact that the colonists are voluntary inmates of the colony and cannot be held against their will except in cases where their condition is immediately dangerous to themselves or to others.

*Economic Side of the Question.* The economic side of the question is also of importance. The epileptic is not generally capable of self-support and is often a charge on his family. In an institution, where there are many like him, special provision can be made to utilize his work to the fullest extent. This, of course, should be the case with every public charge. Each should return to the state for his treatment and care as great an equivalent in work as is possible. Because of this work the public cost of maintaining the epileptic is less than the cost of maintaining the insane.

The general statements made in this address are based on a mass of facts and figures too voluminous to present in so brief a paper, but I reiterate that the public care of epileptics in colonies is shown by experience to be in every way best for their interests and for the interests of the general public.

*National Association's Splendid Work.* The National Association for the Study of Epilepsy and the Care and Treatment of Epileptics, aside from scientific work in the form of such research as scanty funds would permit, has carried on campaigns for the establishment of epileptic colonies. That there are eleven public colonies in the United States today, and four new ones authorized, bears witness of the intelligent zeal of the men in this organization and of the soundness of their arguments. At the 1914 meeting of the Association, held in Baltimore in May, it was decided to carry on vigorous campaigns in the thirty-eight states not having colonies in the hope that soon the unfortunate, primitive, shocking manner in which most epileptics who are public charges are cared for will give way to the best known form of care—the colony. I am sure the Association will welcome the co-operation which your honorable body purposes to give along generally similar lines of activity.

# Massed Information About Public and Private Colonies and Institutions for Epileptics in the United States and Canada

## Questions

INSTITUTION AND SUPERINTENDENT.

*1. Does the law in your state give your institutions the power of custodial detention over patients?*

*2. Briefly, what is the line of effort for the education of your patients?*

*3. What was your population by sexes, and total population, May 1, 1914?*

*4. What was the actual net per capita cost of maintenance for the last fiscal year, and what is included therein?*

*5. What percentage of patients admitted were discharged as cured during the last year, and for what period were these patients free from seizures preceding discharge?*

*6. What percentage of patients admitted were discharged as improved during the last year?*

*7. How many acres do you own, how many are under cultivation, and what is the estimated value of your land?*

*8. How many buildings have you and what is their estimated value and the estimated total value of their equipment, furniture and furnishings?*

*9. What were your total receipts and disbursements for the last fiscal year, showing: (a) Total maintenance; (b) total all other purposes?*

*10. Any remarks about notable developments or happenings during the last two years?*

## Answers

### THE OHIO HOSPITAL FOR EPILEPTICS, GALLIPOLIS, OHIO.

G. G. Kineon, M. D.

1. The law in the state of Ohio gives the institution the custodial detention over patients, provided they are considered dangerous, or if they are convicted of a criminal offense.

2. The children, both boys and girls, are given elementary school work and are also instructed in chair caning, basket weaving, plain and fancy sewing, housekeeping, cooking, laundry work, gardening, etc., the general idea being to teach them something which will be useful to themselves and families in case they return to their homes. The older patients, both men and women, are given instructions in the various departments of the institution, the majority of the women doing housework, laundry work, sewing and cooking, while the men work on the farm, in the gardens, lawn and workshops.

3. Population May 1, 1914, 714 females, 815 males; total, 1,529.

4. Per capita cost of maintenance for the past fiscal year: Gross, $160.07; receipts from outside sources, $26.33; net per capita cost of maintenance, $133.74. This includes all personal service, subsistence, clothing and sundries, such as heat, light, power, water, etc.

5. The number of patients discharged as recovered was equal to 1 1-10 per cent of the total number admitted. That means they have gone over two years without having an attack.

6. The total number of patients discharged as improved during the year equal 32 2-10 per cent of the total number admitted during the year.

7. The hospital grounds consist of 548 acres, 125 of which are under cultivation, the rest being in lawns, hills, woods, etc. The estimated value of this land is $54,800.

8. Fifty-two buildings, exclusive of small buildings and outbuildings. The estimated value is $712,377. The estimated value of the furniture and furnishings of these buildings is $33,257.01.

9. Total receipts and disbursements, $284,773.56; $234,182.59 being the total maintenance, and $50,580.97 being the expenditure for all other purposes. The amount received from outside sources, suh as the sale of products and from friends for the maintenance of patients, amounted to $28,524.69.

10. Twenty per cent of the patients admitted during the past two years had been here previously for treatment. Twenty-three per cent of the entire number of patients admitted since the opening of the hospital give a record of having epilepsy or insanity in the family. Of the total number in the hospital at present 11.16 per cent are hemiplegia, 4.64 per cent having left-sided hemiplegia and 6.52 per cent having right-sided hemiplegia.

### CRAIG COLONY FOR EPILEPTICS, SONYEA, N. Y.

Wm. T. Shanahan, M. D.

1. Under a recent law the Colony has the right to detain such patients as are admitted through the court after having been declared mentally incompetent. Applicants who are not incompetent mentally are received as voluntary patients.

2. General scholastic, manual and some physical training in a separate school building under direction of five teachers. Instruction in music is given by a resident band master, there being a patients' band and patients' orchestra.

3. 665 females; 768 males—total 1,433.

4. Net per capita cost for fiscal year ending Sept. 30, 1913, $169.40; this excluding home product and various receipts turned into the state treasury, including all salaries, wages, traveling expenses of officers and employes on Colony business, household stores, clothing, provisions, fuel, hospital and medical supplies and ordinary repairs.

5. No figure worth anything could be arrived at regarding what percentage of patients admitted during the year were discharged during the year. Of these patients discharged 4 were recovered, having been free from seizures for two years or longer, this number being 1.6 per cent. of the discharges.

6. Thirty-four were discharged as improved, being 14 per cent. of the total number discharged within the year.

7. The Colony owns 1,900 acres, of which 650 are under cultivation. Estimated value of land, $115,000.

8. The present number of buildings, including farm and all other structures, is 95, their estimated value being approximately $875,000. Personal property, including furnishings, etc., is approximately $195,000.

9. Total receipts for the fiscal year for maintenance was $302,500. Total value of product raised and miscellaneous sales, $35,802.54. Reimbursements from counties for clothnig, $20,684.87. Reimbursements from relatives for maintenance of patients, $7,229.29. Miscellaneous sales, other than home products, $3,322.43. All moneys received for clothing, reimbursements for maintenance, etc., are required by law to be turned back into the state treasury and not retained by the institution.

10. Owing to lack of funds, no material development has been possible during the past two years.

### MONSON STATE HOSPITAL, PALMER, MASS.

Everett Flood, M. D.

1. Yes, if they are committed as insane or dangerous epileptics. Sane admissions are required by law to give three months' notice in writing of their intention to leave the hospital. The attorney general has, however, ruled this law unconstitutional.

2. We have schools for the children and industrial instruction for all patients.

3. 469 females; 482 males—total 951.

4. $251.53. This is the actual cost of maintenance.

5. One patient was discharged during the year as having the disease arrested. Had been free from seizures for 30 months. This patient was admitted in 1910.

6. 194 were discharged on a visit as improved. Many of these were admitted in previous years.

7. 687 acres; 200 acres under cultivation. Value, $32,262.

8. Patients' buildings, 18; nurses, 4; farm, stable and grounds, 18; miscellaneous, 9. Value, $452,471.56; value of equipment, furniture and furnishings, $226,150.

9. Total receipts, $16,307.18; total disbursements for maintenance, $22,991.06; total disbursements for all other purposes, $14,221.76.

### THE NEW JERSEY STATE VILLAGE FOR EPILEPTICS, SKILLMAN, N. J.

David F. Weeks, M. D.

1. Under a recent amendment to our law the power to detain our epileptics has been broadened.

2. Our greatest effort is to educate our patients to do something about the institution. We have a complete educational department, starting with sense training, kindergarten, and going through the various grades as far as the 8th grammar grade in regular classes. Patients who can take instructions beyond this point are given individual attention. Our industrial department prepares cases to make our shoes and clothing, repair our furniture and do the many carpentry, masonry, plumbing and steam fitting jobs in the institution.

3. 208 females; 299 males—total 507.

4. The net per capita cost for the fiscal year ending Oct. 13, 1913, based on a daily average attendance of 420.3 patients, was $300. This per capita was figured from the following expenditures: Administration expenses, table supplies, house supplies, clothing and clothing material, repairs, farm,

stable and grounds, heat, light, power and miscellaneous expenses.

5. No patients were discharged cured. Practically all who enter show improvement. Several patients up to this time have been free from seizures the following periods: 2 years, 19; 1 year, 4; 9 months, 2; 6 months, 3; 4 months, 11; 2 months, 9; 1 month, 17.

6. Ninety per cent of the patients discharged were improved. The other 10 per cent would have been had they not been removed before they became institutionalized.

7. The acreage of the village is 1,005, valued at $50,779; 600 acres of this land are under cultivation.

8. Forty buildings, valued at $661,988.40; furniture and fixtures are valued at $48,300.12.

9. Total receipts from private patients, county patients, sales of farm products, miscellaneous sales, and interest on trust funds amount to $55,495.02. Received from state treasurer, $162,140.72. Total expenditure for maintenance, including salaries and wages, $156,094.85. Amount expended for betterments or for items purchased during the year and classed in the permanent assets, $162,094.85. For repairs and improvements to buildings, $6,045.87. Total expenditure, $162,140.72. Receipts for improvements and addition to the permanent assets, $92,482.12. Total expenditures for addition to water system, roads, land, furniture, trees and shrubbery and buildings, $92,482.12.

10. The opening of three cottages and a 35-bed hospital; the extension of the water and sewer system; addition to the dairy barn; acquisition of additional farm with its farm buildings; two cottages for employes, which are about ready for acceptance, and a custodian building for the accommodation of 100 patients which is under way, are notable features of development. The appropriations for developments for the past two years are the largest made to any institution in the state. The growth of the field work, the data gathered in the study of the inheritance of epilepsy, with introduction of sense training, being a modification of Fernauld, etc., methods, have advanced the work of the institution.

## HOSPITAL FOR EPILEPTICS, PARSONS, KAN.

M. L. Perry, M. D.

1. Insane epileptics are committed to the hospital by the probate court, a similar form of commitment being used as in the ordinary insane. Sane epileptics are admitted on voluntary commitment, the application being signed by the patient if of legal age or by the parent or guardian if the applicant is a minor. Voluntary patients cannot be held permanently against their will, but under a special act of the legislature the superintendent is given authority to detain forcibly, if necessary, such patients for a period of ten days after written notice is given that the patient desires to be released. I had this act passed so that we would have temporary legal control over voluntary patients for a period long enough to communicate with their relatives in the event the patient became dissatisfied and wanted to leave, so that arrangements could be made for his safe removal.

2. We have for several years conducted a school in connection with the hospital. Our school term is eight months in duration. We have not been able to secure the necessary appropriation to give us adequate school room facilities or equipment, but do a certain amount of ordinary grade work and quite a little sewing, fancy work, lace making, basketry, and elementary woodwork.

3. Our population May 1, 1914, was 322 males and 204 females, a total of 526. Of this number 24 were away from the hospital on that date on parole.

4. The actual net per capita cost of maintenance for the fiscal year ending June 30, 1913, which is the last period on which I have definite figures, was $193.74. Our per capita cost is reckoned as follows: The sum of the total expenditures for maintenance, ordinary repairs, salaries and wages, less the fees collected and remitted to the state treasurer, is divided by the daily average of the number of patients actually in the institution for the year.

5. During the fiscal year ending June 30, 1913, no patient was discharged as cured. We discharge on an average of about one patient per year whom we consider as cured. We discharge no patient as cured who has not gone at least two years free from seizures and other evidences of epilepsy. Not all our patients who go this long free from seizure are discharged as cured, as we have quite a number who have gone for a much longer period free from the ordinary epileptic attacks, but who show other evidences of the disease and whom we feel convinced are not cured but would have recurrences of their seizures if they were discharged.

6. Fifteen per cent.

7. The institution owns 640 acres of land, about half of which is under cultivation. The land has an approximate value of about $150,000.

8. We have 22 buildings in connection with the hospital, their value being about $500,000. Our equipment has a value of approximately $100,000.

9. For the fiscal year our receipts were: (a) for maintenance, including ordinary repairs and salaries and wages, $92,500. Disbursements, $91,321. (b) all other purposes, receipts, $28,161.37. Disbursements, $22,186.42.

10. There have been a number of improvements in the last two years, including a very satisfactory cottage for boys and younger male patients; a cottage for custodial men of the better class; a large cold storage and ice making plant and considerable improvement of ground, landscape, gardening, etc.

## STATE EPILEPTIC COLONY, ABILENE, TEXAS.

T. B. Bass, M. D.

1. Yes.

2. None, except as to work.

3. 200 females; 225 males—total 425. These are in the institution; some 75 are out on furlough.

4. $167.79. All expenses, clothing, fuel, medicine, and employes' wages and salaries.

5. None.

6. About 17½ per cent.

7. 648 acres; 350 acres under cultivation. Value, $32,150.

8. Seventeen buildings, including barn. Total value, $320,000.

9. Amount appropriated by legislature for maintenance and all other expenses, $78,700. Received from sale of cows, farm products, etc., $2,737.28, which amount was turned into the state treasury and was not used by the Colony.

10. Have been treating all patients with rattlesnake venom since July, 1913, but have been very much disappointed in its results.

## INDIANA VILLAGE FOR EPILEPTICS, NEW CASTLE, INDIANA.

W. C. Van Nuys, M. D.

1. I quote from our organic law: "All persons admitted to the institution shall, until properly discharged from said institution, be under the custody and control of the superintendent; and the superintendent may, subject to such regulations as the trustees see fit to adopt, restrain and discipline any patient in such manner as he may judge is demanded for the welfare of the patient and the proper conduct of the institution.

"No person shall be discharged from the said Village for Epileptics until, in the judgment of the superintendent, the mental and physical condition of the patient justifies it."

2. Until last year, we have had no children of school age. A few are now being admitted and we are remodeling an old building on the premises and expect to have school for the children next winter.

3. 225 males; no females.

4. Actual per capita cost of maintenance for the last fiscal year, $251.50. This includes all maintenance, clothing, ordinary repairs and minor improvements, less earnings paid into the state treasury.

5. None.

6. None.

7. 1,245 acres; 700 acres under cultivation. Estimated value of land, $150 per acre.

8. There are 56 buildings, valued at $216,670.85; furnishings and equipment valued at $28,041.54. This number includes all barns, residences for employes, implement sheds, etc. We have 10 buildings for patients valued at $152,684.32; furnishings of these buildings valued at $9,435.73.

9. Total receipts, $89,000.74; maintenance, $55,547.20; all other purposes, $33,453.54; disbursements, $89,000.74.

10. The last two years have been fairly prosperous with us. We received bids recently for the construction of six new buildings. One will be an isolated frame cottage for 27 epileptic teamsters, and furnished will cost approximately $15,000. The other five buildings, consisting of one main building, one boiler house and three cottages for 25 patients each, will be the first buildings erected in our group for boys. Three additional cottages of the same size will probably be erected in the future. In addition there will, in time, be an amusement hall, industrial building, school house, green houses and a dairy barn in connection with this group, which group will be one of six distinct groups.

## VIRGINIA STATE EPILEPTIC COLONY, MADISON HEIGHTS, VA.

A. S. Priddy, M. D.

1. Yes.

2. Will open a school this fall for youthful epileptics of a mentality which promises any results from educational efforts.

3. 271 epileptics; 160 males, 111 females.

4. For fiscal year ending Sept. 30, 1913, based on an average population of 135, per capita cost was $206.28, including all expenses of operating the institution, insurance and repairs.

5. Total discharges for last fiscal year, 14; apportioned as follows: Insane, 5; improved, 7; unimproved, 2. The discharges of those improved were not based on cessation of seizures but on lessening the frequency, general improvement in health, and conditions at their homes, which made their discharge consistent.

6. 14 per cent. approximately.

7. 1,000 acres; 200 under cultivation. Value, exclusive of buildings, $50,000.

8. Ten buildings. Value, $100,000; furniture and fixtures, $10,000; equipment, $61,000; total value of plant, $221,000.

9. Receipts and disbursements for year 1913 were $79,-

703.81. (a) For maintenance, $27,923.37; (b) For all other purposes, $51,780.44.

10. During the year a three-story brick building was erected to accommodate 115 epileptic women, with kitchen, dining rooms, attendants' quarters and dining rooms furnished complete at a cost of $35,000. Farm, live stock and other property have been greatly improved in value. The death rate was lower for last fiscal year than that of any epileptic institution in this country. An amusement hall, chapel and school rooms are now being built.

### THE PENNSYLVANIA EPILEPTIC HOSPITAL AND COLONY FARM, OAKBOURNE, CHESTER CO., PA.

J. Clifford Scott, M. D.

1. The law of Pennsylvania does not give us custodial detention over patients.
2. Children under 18 years attend school and branches taught to 8th grade; also manual training—raffia, reed work, stencilling, etc., as well as agriculture and horticulture.
3. Population May 1, 1914: 48 females, 28 males—total 76.
4. The actual net per capita cost—69 cents. This is net cost, including all expenses based on Fidelity Trust Co. annual statement. Our per capita cost has been for several years lowest of all institutions applying for aid from state.
5. None discharged cured for year ending May 1, 1914. One patient discharged May 6, 1914, cured, having had no attacks for two years.
6. None.
7. We own 142 acres; 125 acres are under cultivation. The estimated value is $28,000.
8. Ten buildings in all, including farm house and barn. There are 3 cottages for patients.
9. Total receipts and disbursements on account of maintenance for 17 months, from Jan. 1, 1913, to May 31, 1913, $29,386.05; for 12 months, $20,743.08.
10. New buildings have just been completed, viz.: Central kitchen, assembly building for church, school and entertainment purposes; a $12,000 addition to old industrial building combining with latter to make cottage for women. Girls' cottage destroyed by fire Nov. 19, 1912, about to be rebuilt.

### THE CONNECTICUT COLONY FOR EPILEPTICS, MANSFIELD DEPOT, CONN.

Donald M. Ross, M. D.

1. Yes. All must be regularly committed.
7. 500 acres; 100 acres under cultivation. Land cost, $25,000.
8. Two buildings only for patients. Cost of furnishings not yet fully estimated.

### HOSPITAL FOR EPILEPTICS, WOODSTOCK, ONT., CANADA.

J. J. Williams, M. D.

1. Yes.
2. None.
3. 105 females; 106 males—total 211.
4. 62.91 gross; salary, maintenance, etc.
5. Two years, 4 per cent.
6. Ten per cent.
7. 320 acres; 250 under cultivation. Value of land, $40,000.
8. Eight buildings; value, $225,000; total value of equipment, etc., $100,000.
9. Receipts, $16,587.56; maintenance disbursements, $53,587.18, all purposes.
10. Added 117 acres, put up two buildings and grounds improved.

### THE PASSAVANT MEMORIAL HOME FOR THE CARE OF EPILEPTICS, ROCHESTER, PA.

Rev. F. W. Kohler, Director.

1. No law that I can learn of.
2. We have not been able to pursue any line of effort for the education of patients. Seizures too frequent.
3. 47 females; 24 males—total 71.
4. Per capita cost for last fiscal year, $248.20. This includes everything except clothing in about 40 cases.
5. None.
6. None.
7. We rent 54 acres; nearly 30 are cultivated, the rest pasture and lawn.
8. Five buildings; 3 are comparatively new, value, $60,000; 2 old buildings, $8,000; total, $68,000; also barn, pumphouse and reservoir.
9. Receipts, $22,908.45; expense, $23,140.29; deficit, $231.84; maintenance, $12,767.09; balance, $10,141.36, new buildings and furnishings.
10. Built and occupied the new cottage for men.

### EMMAUS ASYLUMS FOR EPILEPTICS AND FEEBLE-MINDED, MARTHASVILLE, MO.

Rev. C. F. Sturm.

2. With the exception of four, we have only adults, giving them a home for lifetime, if they like to stay. One of the four children we send to public school. The three others could not be educated, two of them can not even talk. We have religious services every morning and evening and, in addition to them, on Sunday regular church services, besides Sunday school.
3. 32 females; 45 males—total 77. This includes 36 epileptics and 41 feeble-minded.
4. $118.53, everything included.
5. None.
6. None.
7. 450 acres, mostly wooded hills; about 85 under cultivation. Value, probably $6,000.
8. Ten buildings; value, $38,000 to $40,000; equipment, $2,000.
9. Pension fees, $7,569.82; other receipts, $2,295.65; total, $9,865.47. Total maintenance, $9,859.93.
10. One of our epileptic patients had no seizure since Oct., 1912. Another had only one seizure since Sept., 1912.

### MISSOURI COLONY FOR THE FEEBLE-MINDED AND EPILEPTIC, MARSHALL, MO.

R. P. C. Wilson, M. D.

1. No.
2. Grade work up to the 4th grade; some manual training.
3. 266 females; 205 males—total 471.
4. Approximately $15.00 per month. This includes everything that is necessary.
5. None.
6. None.
7. We have 290 acres; 90 acres under cultivation. Estimated value about $125 per acre.
8. Fourteen buildings; total estimated value of properties belonging to the Colony, $500,000 approximately.
9. From private patients, $5,712.67; from other sources, $830.37. The state legislature, in 1913, appropriated $150,000 for the support of patients, this amount being for two years, 1913 and 1914.
10. During the incumbency of the present superintendent, viz.: two months, the treatment administered has reduced the epileptic seizures about 50 per cent.

#### Memorandum and Totals.

Memo.—New institutions authorized in Illinois, Iowa, Michigan and Wisconsin.

Total population May 1, 1914, 6,773; females, 3,069; males, 3,704.

Acres owned, 9,370; under cultivation, 3,795; value of land, $806,991.

No. of buildings, 390; estimated value of buildings, $4,669,507.81; value of equipment, furniture, etc., $803,748.67. Total value of land, buildings, equipment, furnishings, etc., $6,280,247.48. Two institutions did not report value of buildings; five institutions did not report value of equipment, furnishings, etc.

---

## SOCIAL ASPECTS OF EPILEPSY.

Mr. Maurice D. Lynch,

Chicago, Ill.

It would be too much to hope that in a paper by a layman on "Social Aspects of Epilepsy" any strictly new thoughts upon the subject could be presented, or that attention could be called to any phases of the problem with which you are not already familiar. In fact, the handicaps of the epileptic are so well known to all who have given the matter any thought, it might well seem that nothing was left to be said. However, one who is interested in social work so frequently comes into contact with the problem of the epileptic, and so often is made to realize the hopelessness of successfully dealing with cases of this malady, especially in states where there are no colonies for the care of the epileptic, that he feels impelled, whenever opportunity offers, to reiterate the need of proper provision for these unfortunates.

If what follows should give a new turn of thought to those legislators in the various states who must eventually deal with the problem of the epileptic, or should influence them, in any degree, to lend earnest efforts to provide for the proper care of those afflicted, the only object of this paper will have been attained.

Thanks are due, and are here tendered, to those ladies and gentlemen connected with various charity and other organizations in fifty cities of the United States, whose courtesy in furnishing data has helped so much.

In ordinary cases of distress, the social worker finds the existing machinery of his organization sufficient to cope with practically every situation that arises. In these days of day nurseries, outing camps, tuberculosis sanatoriums, visiting nurses and all the other agencies that co-operate with organized charity, about all that is left to worry over is money to keep the machinery going. When epilepsy is encountered, however, the social worker finds himself blocked. Where no colonies exist, nothing adequate can be done for the unfortunates. Most states provide only for epileptics who may be committed as insane, or who may be sent to institutions for the feeble-minded. Sometimes different counties send epileptics to the county poor-houses, but the patient who suffers from periodical spasms and who at other times is apparently normal, is without any hope whatever for humane and effective care.

The victim of epilepsy may be quite strong and healthy, willing and anxious to work and provide for himself and family but once he is known to be an epileptic, every avenue to employment is closed against him. Nor can you blame employers for not wishing to hire him. The epileptic employed in a place where there is machinery is a menace to his fellow-workman as well as being liable to injury himself. If he personally handles machinery, the danger is greatly increased. If the epileptic is a clerk in an office, he upsets the whole routine of the place when he has an attack and makes his retention in positon impossible. The writer remembers well the case of a girl epileptic, who had a violent seizure in a large office where there were some two hundred other young women employed. Such nervous terror was shown by so many of the other girls, it is safe to say that no known epileptic ever will be employed by that particular firm. And you cannot blame the firm for wishing to spare its employes from witnessing such distressing sights.

We are told that in something like eighty per cent of all cases, epilepsy manifests itself before the age of twenty years. The poor epileptic, therefore, seldom is able to learn a trade or any special occupation, with the result he is not able to hold steady employment and thus provide for himself like other men. He usually is the most inefficient of unskilled laborers. If the disease comes upon him in later life he has to give up his trade, if he has one, because he cannot work steadily at anything and he thus becomes an unskilled laborer. The smaller wage in such cases necessarily reduces the standard of living and usually drives the wife and young children to work, to the detriment of their health and education. Also, epilepsy, by weakening the control of the individual, is very apt to become a moral handicap, leading to intemperance and vice.

Scores of cases, showing the handicaps of the epileptic in the matter of getting employment, might be cited, but one from Tennessee is all that will be quoted:

*The Barker Case.* The man in question came to the Associated Charities seeking help to get a newspaper route in the suburbs. He could not hold employment in inside positions but believed that outside work would be possible for him and he had a friend who would loan him a horse and buggy to make the daily trip. The route was accordingly secured for him but a few weeks afterward he fell out of the buggy during a seizure. He hurt himself and was sent to a hospital for two months. Upon being discharged from the hospital he resumed his route, this time with a boy to accompany him, but on account of frequent seizures he was unable to continue. For a year afterwards one outside job after another was found for him but he was able to hold each one only a short time. At the end of the year he had a stroke of paralysis and, as his mind was becoming affected, he was placed in the insane ward of the County Hospital. He still is there, hopelessly insane. The report concludes with the statement that if there had been a colony for epileptics in the State, so that the man could have been placed therein at an early stage of his affliction, his case would have been in all probability materially helped.

The epileptic, in additon to the handicaps he labors under in the matter of getting and keeping employment, is deprived to a great extent of the pleasure of association with his fellow men. His malady usually keeps him from attending services in whatever church he may belong to. He does not feel that he should go to public entertain-

ments. He cannot, with any satisfaction, share in the sports and diversions of his fellows. If he is intelligent, he often is deeply humiliated because of the aversion in which those so afflicted are held, and because of the fallacy held by many otherwise intelligent people regarding epilepsy as a contagious disorder. It might be well to mention here that sudden death in an epileptic is common and the cause may not be recognized, and circumstantial evidence associated with the death many involve other persons in serious difficulty.

But it must not be supposed that it is only the victim of epilepsy, himself, who suffers. While his own plight is pitiful enough, the case of his wife and children is no better. As a matter of fact, the presence of an epileptic in any family, even in families where the question of want does not enter, is demoralizing in the extreme. The nervousness of the patient, the ever-present fear of the rest of the family of the expected recurrence of the spasms, leads to high nervous tension in all. This is particularly true if the husband and father is the afflicted one. The attacks of the patient make the home an unpleasant place for the children; they do not care to have their friends visit their home, so they begin going away from it for their pleasures. Many children thus learn to live away from home, losing parental restraint and the feeling of filial responsibility. The epileptic in a family, especially where the condition is marked, requires so much attention that one or more normal members of the family are prevented from assuming their proper part in community life, thus entailing material loss to the state.

The presence of an epileptic also decreases the earning power and thus lowers the standard of living of the family. Frequently, where the husband is the afflicted one and the wife is a healthy and capable woman, the latter could easily find employment and support herself and children if she did not have on her hands the care of her husband. If there were institutions in every state to which the epileptic could be committed, the position of the family would be immeasurably better, because the normal members of it could find employment and would enjoy peace of mind. Peace of mind is impossible in a family that numbers an epileptic among its members. A few cases will be quoted, which illustrate the effect of the epileptic husband on the rest of the family:

*The Green Family.* This family consists of a father, mother and three children, a boy of thirteen, a girl of nine and a boy of eight. The father, a man of forty-eight years, worked as a steamfitter, earning $18.00 a week, until he was suddenly taken with epileptic attacks. Since March, 1909, he has been unable to secure employment. For a year after his illness, the wife endeavored to support the family, working as a charwoman in an office building. The nervous strain of her husband's attacks finally broke her health, and the physicians said that if she did not have complete rest, she would lose her mind. Incidentally, $1,442.70 has been expended upon this family during the period they have been pensioned up to February, 1914.

*The Brown Family.* Consists of a father, mother and one child, a girl of nineteen. The father, who is sixty years of age, was a brass finisher. For the past six months he has been unable to work. His epilepsy has affected his brain. As he had threatened several times to asphyxiate the whole family, it was found necessary to have him committed to an institution for the insane. It is easy to imagine the mental condition of the other members of this family.

*The Johnson Family.* In this case the wife became a nervous wreck because of the fear and distress she endured whenever her husband's epilepsy overcame him, which it did several times a year, making him very dangerous, sometimes for weeks at a time. Her health became so bad, she could not withstand an attack of illness that came upon her and she died. Her husband's condition was undoubtedly the indirect cause of her death. The man in this case pleaded pitifully for an opportunity to go to an institution for epileptics and receive proper treatment.

So much for cases where the husband is the afflicted one. Let us now turn to those where the wife is the victim. The malady in the case of the woman usually makes it impossible for her to conduct her household properly. It weakens her will power, causes her often to be inefficient, lazy and careless, and prevents her from making the home attractive to the husband, with the result that epileptic women are very frequently deserted by their husbands. They usually, too, lack proper control over their children. Thus we find many cases of delinquency among the children of epileptic mothers. Let me quote two cases that come from the District of Columbia, which well illustrate this point:

*The Smith Family.* This family consists of a man, woman and three children. The youngest two are the woman's children and the oldest is the child of the man's first wife. The woman has been ill with epilepsy for at least five years, how much longer we do not know. She has grown steadily worse, and now her mind is affected and her physician says she never can be any better. The oldest child, dissatis-

fied with her home, has lived away from it for some time and has recently become the mother of an illegitimate child. The youngest child frequently has to stay home from school in order to care for her mother, who has violent spasms. The situation is made worse owing to the fact that the man drinks, is immoral and does not support the family. During the past winter, he, too, has been ill. The family has sold almost all its furniture and the home conditions are terrible.

*The Robinson Family.* This family consists of a widow, with four daughters, aged respectively, twenty-eight, twenty-one, eighteen and four years. The mother is an epileptic and while she has gone to a hospital for treatment, she is gradually growing worse. She can do fair work as a laundress and good work as a cleaner, but rarely can make more than $1.50 a week, as it is hard for her to secure a place on account of her affliction. Her oldest three daughters are by her first husband, who, she claims, is dead. The fourth is the child of a laborer who died in the Home for the Aged, where he was placed after having a stroke of paralysis. The three grown daughters each are living with men to whom they are not married, and have illegitimate children.

Where children are epileptic, we find the same strain on the parents and other members of the family as in cases of affliction among adults. Epileptic children nearly always have a poor school record and their lives in school are very unhappy on account of other children making fun at their expense. They often grow up without either mental or physical training, and their chances in life are practically nil. Some children may never be left alone, thus preventing the mother, if she is a widow, from doing anything towards the support of the family and automatically forcing them into pauperism. The case that follows illustrates this:

*The Kellar Case.* In this case we find a boy, twelve years of age, who has frequent epileptic seizures. During one of these, which occurred recently, he was severely burned. The mother was deserted by her husband some time ago and left without means of support. She is a capable woman and under ordinary circumstances would have no difficulty whatever in getting along and making a living for herself and child. She is willing and anxious to work but the boy must always be watched and she is unable to find anyone who will care for him in her absence. The result is she is compelled to accept charity.

It might be well to note that in at least one epileptic colony that I have in mind, no provision is made for the reception of any but able-minded men who are "curable," so that in that state, although a colony for epileptics exists, it makes no provision for women and children.

There is another class of epileptic cases to which it may be well to refer. I mean those cases where the question of poverty does not enter but which show the terrible mental anguish of sensitive, educated victims.

*The Henderson Case.* I have in mind this case of a young man in an Eastern city. He is exceedingly bright; he stands high in a social way and is very successful in business, but has a strain of epilepsy in his blood. His seizures were infrequent, never more than once a year, sometimes not so often as that. His habits were clean, his integrity beyond question and his personality pleasing. He became betrothed to a young woman of high attainments, but did not make his affliction known to her. While he was following an usher in a theatre one evening, the young woman just preceding him, he was taken with a seizure which was the first he had experienced in two years. That marked the close of the relations between himself and his fiancee. Of course, it is well that it did. It illustrates, however, in a striking way, the handicaps of the epileptic in the social relations of life.

*The Sanderson Case.* Another case, which presents a strong moral lesson, is this one of an intelligent young woman, well educated and ambitious, who held a good position in a manufacturing establishment in Pennsylvania. She had always craved the beautiful things of life and finally met a well-to-do young man who fell in love with her and wanted to marry her. He could have given her all the things for which she longed. She had, however, been subject to epileptic seizures for a number of years and had received treatment from a doctor in her city. When she realized that she wanted to marry, she went to this doctor and asked his advice. The doctor sent her to an alienist in Philadelphia, who examined her carefully and told her he felt she would be doing a great injustice to the man if she married him, as well as to the children who might possibly come from the union. This girl gave up the man and has since lived her life with courage and fine spirit, but it is quite patent that such an attitude could not be expected from people of lesser moral courage and insight into the future.

In the course of social work among families of epileptics, we see so many striking illustrations of the influence of heredity in epilepsy, that surely it requires no expert knowledge of the subject to draw from them the conclusion that the epileptic must not be permitted to propagate his kind if any headway is to be made against the advance of this great scourge. From Pennsylvania comes a case which shows clearly the influence of heredity.

*The Walker Case.* Here we have a young woman suffering from epilepsy, who has two small children. Her father and grandfather before her were epilep-

tics. Her oldest child, now two years of age, has developed convulsions. The woman herself has the mental development of a girl of thirteen. She is inefficient, indolent and does not know anything about making the home attractive. Her husband has deserted her several times and yet in this case there seems to be nothing to look forward to except continued propagation and years of dependence upon charity.

*The Williams Case.* Another typical epileptic family is this one from Illinois, where the husband, forty-nine years of age, is epileptic. The wife is sickly and worn out. The oldest child, a daughter of twenty, was in one of our State schools for three years. She has had two illegitimate children. The next child, a boy of eighteen, was at another State institution for several years. He left school at the fourth grade. He works irregularly and is given to drink. The next child, a boy of sixteen, left school at the fourth grade. He refuses to work unless threatened with court action. The fourth child, a girl of thirteen, is still in school in the third grade. The next child, a boy of ten, is in the first grade and is feeble-minded. The two youngest children, boys of seven and three years respectively, are nervous and unmanageable. This family is and always has been dependent on public and private charity, although three of the children have now attained working age.

*The White Case.* In this family, the husband is forty-two years of age, the wife forty-six years, and there are five children of thirteen, ten, nine, eight and seven years, respectively. The family has been helped by the Associated Charities for ten years. The man is unable to work because of frequent attacks of epilepsy. At one time he was earning $3.50 a day, but he cannot hold a position any more. The woman is an inefficient home maker and four of the children were committed to the State School for Dependent and Neglected Children. Two of them have infantile paralysis and the youngest child suffers from an incurable skin disease. She also is feeble-minded and extremely nervous. The cost of this family to the community has been very great.

Scores of cases such as these might be cited to show how epileptic parents beget epileptic children. With slight variations, the tale is always the same.

From no matter what angle you view the problem, you are forced to the conclusion that the epileptic at large is a menace to society. Sometimes this truth is brought home in a terribly impressive manner. Only last week we, in Chicago, were shocked by reading accounts of the brutal murder of a four-year-old girl by a known epileptic. In spite of the well known fact that many epileptics just prior to seizures have a strong homicidal mania and that the records are full of deeds of violence committed by epileptics who really were not to blame for those crimes done while in the grip of their malady, society in general seems to view epilepsy with an indifference that is almost incomprehensible to those who have given the subject even the most casual thought.

Surely, there is only one sane way to meet the situation and that is to enact in all states laws committing epileptics to properly equipped colonies, where they may be intelligently dealt with.

There is little doubt that the question of cost is chiefly responsible for any state being without a properly equipped colony for epileptics. If, tomorrow, colonies could be established without cost, no state in the Union would be without one or more. Now, when we consider that every state, right now, does indirectly pay for the care of every case of epilepsy within its borders and pays at a ruinously expensive rate, is it not disgraceful that epileptics everywhere are not humanely and scientifically cared for?

The answer of the average State Legislature to the plea for colonies and the excuse the average legislator makes to his conscience for failing to urge their establishment, is "we cannot afford it now. We cannot pay out that much money now." But they *do* pay and pay dearly, not only in money but in broken homes and broken hearts and every generation bequeathes to succeeding generations a terrible legacy in the ever increasing number of these unfortunates who must be cared for.

---

## COAGULATION TIME OF THE BLOOD IN EPILEPTICS.

D. A. Thom, M. D.,
Monson State Hospital.
PALMER, MASS.

Observations as to the morphology and toxicity of the blood in epileptics have been numerous and the results of these researches have been fairly constant, though they have borne but little fruit. As to the coagulability of the blood in epileptics the results have been more varied.

Both Dr. John Turner and Dr. William Alden Turner believe that the coagulation time is greater in epileptics, while C. Besta reports a lessened coagulation time in those cases suffering from the disease. These differences in opinion may have resulted from a difference of the technique in determining the coagulation time, or

what is more likely, it is simply that difference that would be apt to occur in so many different individuals.

There is without doubt a wider variation in the coagulation time of the blood, than there is in its morphological characteristics.

That there are under normal conditions between four and five million red blood cells per c.c.m. we are reasonably sure, but it would be with much less certainty that we could state with the same relative leeway for error the coagulation time of the blood.

I believe the normal limits for coagulation time of blood might be fairly set between three and eight minutes, and in my work I have used these figures.

The method used for determining the coagulation time of the blood in the cases I present was the same as described by Roger I. Lee, M. D., and Paul D. White, M. D., of Boston, in the *American Journal of the Medical Sciences*, April, 1913, and is described by the author as follows:

One c.c. of blood is withdrawn from an arm vein, using a small, all-glass syringe (for example, Burroughs and Wellcome, 20 minims), preferably with a platinum needle, the syringe having first been sterilized and rinsed out with normal salt solution. The time at which the blood is withdrawn is noted as accurately as possible; the needle is removed and the syringe then emptied into a small glass tube (Widal tube), about 8 mm. in diameter, which has previously been rinsed out in normal salt solution. The tube is rotated endwise every thirty seconds, and that point at which the blood no longer flows from its position but maintains its surface contour when inverted is taken as the end point. Care must be used to exclude air bubbles, as they tend to accelerate coagulation.

It is true that this method is not all that could be desired, but it is superior to any of the methods now employed for the purpose.

In this work I examined the blood of two hundred and fifty-five cases, but for some reason or other I found it necessary to discard fifty-two cases. Some cases went home, some died, a few objected to the injection of the hypodermic needle and I could only get one specimen for examination. Of the two hundred and three remaining cases I had every opportunity to make numerous tests and verify my work from time to time.

Of the two hundred and three cases I used for this work, not all were idiopathic by any means, but they were the most suitable out of the nine hundred and fifty cases I had to select from, and were free from clinical evidences of organic brain or cord lesions. They included both males and females from ten to sixty years of age.

The blood was taken during the interval between convulsions, during convulsions, just preceding and following convulsions.

The work was done routinely between two and four-thirty p. m.; the same method was employed in each case, and I personally took the blood and determined the time of coagulation and my results were as follows:

One hundred and eighty-seven or 92 per cent of the cases showed that the coagulation time of the blood fell within the normal limits of stated time, 5.5 per cent fell under the minimum time and 2.5 per cent were over the maximum. The shortest time for coagulation was two and one-half minutes, the longest fourteen minutes.

I found but very little variation and nothing at all consistent in the coagulation time with reference to their convulsions. It mattered not whether the blood was taken during an interval between their convulsions or during status; the difference in time was such that it could be accounted for in many plausible ways.

In conclusion I would say: 1. That convulsions in idiopathic epilepsy should no longer be attributed to the rapid coagulation time of the blood. 2. That there is no change in the coagulation time with reference to the convulsions. 3. That therapeutics based on this theory will prove a disappointment to the physician.

---

*Thursday, July 16, 2 P. M., Hotel La Salle.*

## REPORT OF THE COMMITTEE ON THE PREVENTION OF EPILEPSY AND THE CARE OF EPILEPTICS.

CHAIRMAN: We have now come to the report of the prevention of epilepsy and the care of epileptics. No formal resolution has been made and there has been no meeting of the committee that I know of.

There is no report. If you wish a formal report it will be drafted.

DR. CORWIN: Why can't we make the address or the paper of Mr. Graves the report of the committee?

CHAIRMAN: It is moved that the paper of Mr. Graves be put in the form of a resolution. All those in favor signify by the usual sign.

VOICE: Seconded.

CHAIRMAN: It is moved and seconded that Mr. Graves' paper will be used as the report of this committee. Any discussion?

Dr. Geo. A. Zellers, Springfield, Ill.: *Ladies and Gentlemen:* You might wonder what there is to discuss, since when Mr. Graves kindly consented to have his paper constitute the report he has said about all that can be said about this subject of the "Cause and Prevention of Epilepsy." Epilepsy is not a new disease; it is as old as history. Alexander the Great died in an epileptic seizure; Julius Caesar was an epileptic; that is well known, historically. Napoleon stood in stupor at Waterloo, unable to avail himself of his opportunities, so you see, epilepsy has not been confined to the poor. There has always been research work in epilepsy; I have known of some of the work that has been done. I have had 250, or say 200 epileptics during the last 10 years under my observation. This research work has been pushed as fast as any other scientific research in relation to mental diseases. It is not feasible to talk of the prevention of anything until you know the cause. We did not know how to prevent yellow fever until we knew about the mosquito. I wish to speak just a minute of mechanical restraint. I was stupefied yesterday. A paper was read before this body at the Psychopathic Hospital on the Indications for Mechanical Restraint. My answer might have been, "There—not here." It was read by a progressive, human superintendent who has reduced it very much, but the point I want to make is—and there is present at this meeting a superintendent from the neighboring state of Kentucky, one of the large institutions of that state who can bear testimony to the fact—that mechanical restraint is never needed. Now, in particular, I want to emphasize this fact. Yesterday, Dr. Singer had a harmless insane subject brought into the room in shackles—that in itself, was inhuman; it was a confession of the state's failure; the human side was forgotten and they went back to the mechanical, but the very fact that this body sat and saw a man presented in mechanical restraint, that it was allowed, might lead to the opinion from this meeting that it is the way the insane must be cared for. I want to raise my voice against the proceeding you saw yesterday. It is not necessary; it is never justified; it is not human.

CHAIRMAN: There is a motion on the floor to adopt Mr. Graves' paper as the report of the committee on the "Prevention of Epilepsy and the Care of Epileptics."

Amos W. Butler, Indianapolis, Ind.: I wish we could have had, 20 years ago, some such papers as Mr. Graves and Mr. Lynch presented with which to arouse the profession to the necessities of the cause. As it was, we had to organize ourselves and arouse the interest of the institutions in other states to secure the passage of the necessary laws and provide for the appropriation for the beginning of institutions, its organization and its present conduct. I want to say more of the state charities of which I have been secretary; they are interested in this great problem; as many of you know, the board has a clearing house of all the institutions and social agencies of the state. We have the reports of the poor who have been relieved, of all the hospitals for the insane and schools for feeble-minded.

Dr. Samuel E. Smith, the superintendent of the Eastern Hospital for the Insane, was one of the strong champions for a movement for institutions for epileptics. Early in our investigation we came to find out that the question of colony or village of public wards was not a question of epileptics but was a form of treatment which could be applied to all classes of public wards, as in Wisconsin, Michigan and Massachusetts; in a number of states, the juvenile delinquent, in Massachusetts and Indiana, the feebleminded, and in Massachusetts, New York, New Jersey and Indiana, the epileptic; so we worked out a plan which would provide for a village for the epileptics, to be arranged on the village type and to be constructed with simple, inexpensive but substantial buildings. We were very fortunate in having our plan work out and carried out in the purchase of 1,245 acres of land and we arranged it so that women could be grouped on one side and men on another and we were very fortunate in the selection of the commission which bought the site and in the selection of the board of trustees which organized the institution and we think we were particularly fortunate in securing as superintendent of that institution a physician who recognizes the important problem of the care of the epileptics in a village or colony.

CHAIRMAN: There is a motion on the floor, that we adopt the paper of Mr. Graves as the report on the prevention of epilepsy and the care of epileptics. Let us dispose of the motion. There seems to be no further discussion.

All in favor signify by the usual sign, aye.

CHAIRMAN: It is unanimously adopted. Now this will be presented to the various legislators.

I wish to announce that the committee on the Causative Forces of Mental Deficiency, consisting of Drs. A. C. Rogers, Leonard, Towne, Pogue, Lindsay, Kehoe, Bliss, Sawyer, Mendelsohn and Grossman, kindly meet after the close of this meeting in the neighboring room.

DR. CORWIN: I think it would be entirely in place to offer a special vote of thanks to these two laymen, Mr. Graves and Mr. Lynch, for their

splendid contributions. I do this for the value of co-operation which the layman must give us. I make this motion and desire that it be moved and seconded that a special vote of thanks be extended to these laymen for their able contributions.

CHAIRMAN: All those in favor signify by the usual sign.

Unanimously carried.

---

## STUDY OF A CASE OF INFANTILISM WITH HYPOPHYSEAL INSUFFICIENCY.

E. BOSWORTH McCREADY, M. D.
Pædologist, Southside Hospital. Pædologist, Gusky Orphanage Home.
PITTSBURG, PA.

Though so far cretinism is the only form of infantilism which has been definitely proved to be of endocrinous origin, the investigations of Fröhlich, Beidl, Cushing, Berkeley and others tend to show an extremely close relationship between ductless gland irregularity and those defects of development which may be broadly grouped under the term "infantilism." This relationship has seemed sufficiently close to justify the name of *pituitary* or *Fröhlich's* infantilism for that form which presents as characteristic features, obesity, lack of sexual development and increased carbohydrate tolerance. In marked contrast to the adiposo-genital dystrophy of the *type Fröhlich* are the cases of hypophyseal infantilism of the *type Lorain* in which the individual is weak, delicate and undersized with the bodily proportions of maturity rather than infancy. Probably, as Cushing says (The Pituitary Body and Its Disorders) in the end all of these instances of hypophyseal infantilism, due to preadolescent hypopituitarism will be grouped together, whether they exhibit adiposity or not.

I venture to report the following case because in my mind the evidence (at the present stage of our knowledge) seems weighty enough to support the contention that, while other factors may have acted as causative forces in the infantilate condition, yet the symptoms point strongly toward an hypophyseal insufficiency as an important causative or at least complicating factor. The patient came under observation during the course of examination of the children under the care of one of the local child-caring agencies and on account of the many features of interest which he presented was placed in my private institution for purposes of study.

J. F. Male. Born April 19, 1898, making him 15 years 10 months old at first observation, Feb. 2, 1914. Height, 4 ft. 3½ inches. Weight, 59 lbs. Cranial circumference, 21 inches. Father drinks heavily at times; one sister of 12 is delicate. Family history otherwise is negative. Patient began to walk and talk at usual time. At age of 2 fell through a coal hole, though no injuries attributable to the fall can be definitely ascertained, the possibility of injury to the base of the skull must be noted. A scrotal hernia was first noticed at this time as was the polydipsia and within a few months asthenia, poor muscular coordination, etc. The boy had been allowed to run the streets, he had chewed tobacco habitually and had

Fig. 1. Showing Bodily Infantilism with Tendency Toward Feminine Type of Distribution of Adipose Tissue.

been intoxicated upon several occasions. He very often left his home in the morning and would not return until eleven or twelve at night. He was given to petty thieving, would "lie like a trooper." He had the faculty of appealing to the sympathy of strangers and was always able to get any money he wished for immediate purposes by begging. Another source of income was through beating the games of chance in the cigar stores and selling the articles he won. He ate at all hours and capriciously, mostly sweets, and drank huge quantities of water, often several quarts at one time.

Physical condition: His height and weight as given above corresponds to that of a boy of about 10 years. He was poorly nourished, with marked muscular incoordination which with a marked genu valgum made locomotion almost ataxic in character. Physiognomy

Fig. 2.

Figs. 2 and 3. Showing Immaturity of Features with Tendency Toward Maxillary Prognathism.

corresponded to that of a bright, somewhat delicate boy of 8 or 9 years. No anatomical stigmata of degeneration, except that hair grew rather low over forehead. Voice was a childish treble. Articulation poor, certain consonants being substituted for others as in very young children and in idioglossia. For instance, *little* was pronounced *wittle, write, wite,* and *water, watte.* No nasal obstruction, thyroid not enlarged, no dullness over thymic region, genitals not markedly small (like boy's about 10 years) and no pubic or axilliary hair. Skin is fine and soft, with no perspiration. Mentally the child is alert with a certain sharpness which might easily pass for intelligence. His favorite method of attracting attention was to accost the stranger with the statement that if he told the year of his birth he would tell him how old he was. This he could do with surprising promptness, as well as other problems in addition and subtraction. His memory for dates, details of past occurrences and names was unusually accurate. He possessed a large fund of miscellaneous information, for the most part useless. His most spectacular stunt was to read a newspaper or book upside down or turned sidewise with the same facility another person would read it in the proper position. These special aptitudes had come naturally as his attendance at school had been very brief and irregular. In fact, his teachers had stated that it was impossible to teach him anything. This, however, came through his lack of interest, as his unusual memory makes it possible for him to make rapid progress when he so wishes.

The result of about 5 months' observation and treatment is as follows:

Examination of eyes under atropin by Dr. Edward Stieren showed hypermetropia. Both discs were pale and anemic, but there was no atrophy.

Radiographs of the sella turcia taken by Dr. C. N. Schaefer show it to be decidedly smaller than normal with a surrounding shadow suggestive of a tumor. The sellar outlines are particularly well shown in the stereoscopic plates.

Radiographs of the hands show greatly delayed epiphyseal ossification.

Blood pressure, 105.

Urine, excessive in amount, colorless, of low specific gravity.

Patient could retain 150 grams of laevulose without resulting mellituria. 200 grams gave rise to emesis.

His weight under the influence of proper feeding and hygiene began at once to increase. At present he weighs 65 lbs. With the increase in weight the distribution of subcutaneous fat became more of the feminine type.

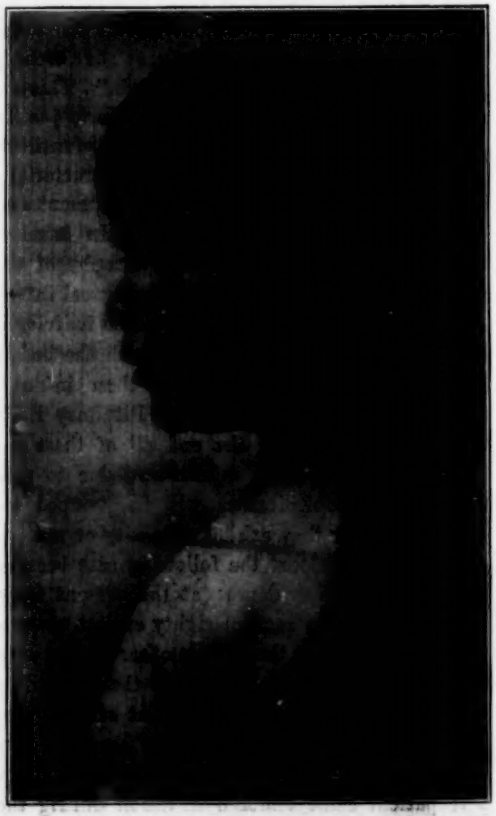


Fig. 3.

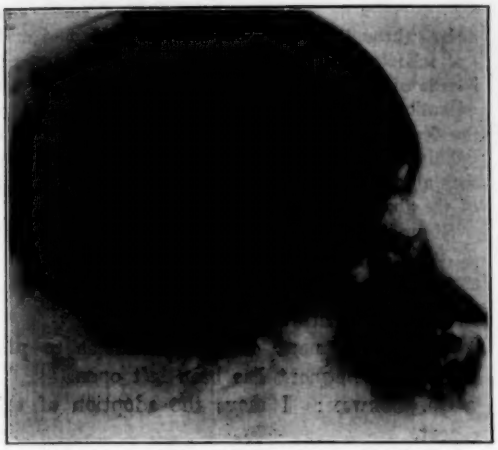


Fig. 4. Showing Small Sella Turcica.

For the first three months he received a tablet containing very small doses of thyroid, thymus, pituitary, testicular, and supra-renal extracts. For the last of the three months he received in addition 2 grains extract of the anterior lobe of the pituitary. During this period absolutely no gain in height resulted. He was then placed upon one capsule daily of desiccated whole fresh oxgland mixed with milk-sugar to standard dosage. In three weeks he had gained three-quarters of an inch and to the present date (about 10 weeks) has gained one and one-half inches. He has gained markedly in coordination, in gait, and in activity. When first under observation the slightest exertion tired him so that he was compelled to sleep or rest. He is now able to take a walk of several miles without undue fatigue. The change in the boy's appearance is so great that his father states he would hardly recognize him as the same boy. By the Binet and Simon tests at the beginning of the observation he tested to approximately ten years, failing on the majority of the questions of comprehension, but answering correctly the criticism of sentences under the 11-year tests and interchanging the hands of a clock under the fifteen years. Tests made lately show improvement. He still fails upon questions of comprehension, dissected sentences, problems of various facts, and abstract definitions. He understands the use of the code but is unable to write a message without several errors and in giving opposites of words he barely passes.

He is egotistical to an extreme degree. Is childish in many of his modes of thought and action, though he cares little or nothing for the ordinary occupation of childhood. He is apt to cry when disappointed or when suddenly awakened from sleep. (This tendency to cry is noted by Boorstein, in his report of a case, in the Jour. A. M. A. of July 11, 1914.) His disposition is usually happy and care-free when left to follow his own bent. He is practically fearless. In fact, a certain affinity seems to exist between him and birds and animals. About once a month the wanderlust seizes him and he has to be carefully watched for a few days. He learns easily when his interest is involved but in spite of his unusual memory for figures he makes very ordinary progress in arithmetic because of lack of concentration. Considering the fact that he has gone to school but very little his ability in school work is about what would be expected of a normal boy of his age with corresponding lack of instruction. While apparently realizing and acknowledging his deficiencies he seems to think that these are counterbalanced by his special abilities, and has no ambition to be like other boys of his age. In fact, he will deliberately neglect to take his medicine, because, as he has stated, he has no desire to grow. He evidently feels that this would deprive him of all claims to special recognition.

Summary:—Skeletal undergrowth, quantitative and qualitative, the small sella turcica, high carbohydrate tolerance, polyuria, absence of perspiration, absence of pubertal changes, all point to an etiological complex with hypo-pituitarism as a prominent factor. The sudden growth response to pituitary feeding tends to confirm this assumption, though it is granted that it is possible that this may only have been coincident.

---

*Thursday, July 16, 2 P. M., Hotel LaSalle.*

MR. CHAIRMAN: I am going to call for the report of the committee on "The Prevention of Insanity."

## PREVENTION OF INSANITY.

DR. KING: (Chairman of the Committee), *Ladies and Gentlemen:* We have given these

Fig. 5. Showing Long Tapering Fingers with Delayed Epiphyseal Ossification.

resolutions considerable thought and hope they will meet with your approbation. At the same time, these resolutions will be open for discussion and we would like to have them fully discussed so that we can arrive at the very best results.

"WHEREAS, It is well recognized by alienists and neurologists the world over that certain major factors are the chief causes of physical conditions accompanied by mental derangement and deficiency, and

"WHEREAS, These major causes are largely, if not wholly, controllable and eradicable, and

"WHEREAS, These major causes are alcoholism, habit producing drugs, venereal diseases, work in insanitary and unhygienic surroundings, and hereditary influence, including the immigration of the physical and mental unfit; therefore, be it

*"Resolved,* First: That we recommend to the proper state authorities, the absolute control of the sale of alcohol until such time as actual prohibition be enacted.

"Second: That the sale of all habit inducing drugs be strictly regulated in all states of the Union.

"Third: That municipal or state control of venereal diseases be established, with proper treatment for indigent patients, to the end that the spread of syphilis and gonorrhea be prevented.

"Fourth: That proper special hospitals for the care and treatment of alcoholism and drug addictions be established.

"Fifth: That municipal, state and national inspection of labor conditions be regularly maintained and child labor abolished.

"Sixth: That no known defective dangerous to himself and to others, should be permitted to have unrestricted liberty.

"Seventh: That adequate teaching of the principles of heredity and sex life be initiated and fostered in the home with the view to its introduction into the curricula of schools—above the grammar grades, this instruction to be given to the sexes separately.

"Eighth: That the various states pass reasonable and universal marriage laws, that will be reciprocal, in preventing the marriage of the physical and mental unfit.

"Ninth: That a psychopathic laboratory be connected with the criminal courts, common schools, railroads, transportation companies. Public service utilities, responsible for the actual safety of the general public, should have their employes regularly examined as to their physical and mental fitness.

"Tenth: That, inasmuch as state, county and city public health institutions should have as their superintendents men of highest qualifications, who may devote their best efforts to their tasks, we recommend that all such positions be subject to civil service examinations.

"Eleventh: That, in addition to the above, we recommend a nation-wide campaign of education conducted through the public press, university and medical schools, boards of health, state, county and city boards of education, women's clubs and other proper educational mediums, upon the true significance of the development—physical, mental and moral—of the individuals and the race and finally, we recommend that a committee be appointed to promote the enactof the above resolutions."

Signed by the committee on Prevention of Insanity:

Drs. King, Chairman, Grinker, Sterne, Neu, Munro, Gahagen and Lewis.

The appointment of the committee to promote the enactment has been left open.

DR. CORWIN: I move the adoption of this report.

DR. STERNE: I second the motion, but make a motion that a psychopathic laboratory be added.

CHAIRMAN: It is moved and seconded that this report which has been read be adopted. It is now open for discussion.

THE CHAIRMAN: The report is adopted.

THE CHAIRMAN: We will have the report of another committee. "Causative Forces of Mental Deficiency."

DR. ROGERS: *Mr. Chairman.* Your committee on the Causative Forces of Mental Deficiency begs leave to report:

We feel it unwise at this time to make any recommendations in regard to constructive legislation owing to the lack of proper evaluation of available data as to causes and sources of mental deficiency. We do, however, recommend and urge segregation of mental deficients and the furthering of investigations as to the causes and sources.

(Signed by members of the committee).

Drs. Lindsay, Sawyer, Mendelsohn, Bliss, McCready, Rogers, Leonard.

---

## A RATIONAL SYSTEM OF MEDICAL, PHYSIO-PSYCHOLOGICAL AND MENTAL TESTS FOR THE DETERMINATION OF EXCEPTIONAL DEVELOPMENT IN CHILDREN.

MAXIMILIAN P. E. GROSZMANN, PH. D.,
Educational Director of the National Association for the Study and Education of Exceptional Children.
PLAINFIELD, N. J.

When one speaks of "exceptional" children, most persons think first of the lower ranks of mentality, and take it for granted that the term

"exceptional" is euphonic for "mentally defective," "feeble-minded," "subnormal," "abnormal," and the like. There has been, and still is, a great confusion in terminology when this subject is discussed, and one of the first and most important steps to be taken is to agree on some suitable set of terms and a classification which can be accepted as a working basis. The author of this paper has suggested such a tentative classification and terminology which was practically adopted by the American Academy of Medicine in 1909, and which since has been favorably commented upon and used by many individual workers and institutions.

In this classification, the term "exceptional" is employed as a general term including all kinds of deviations from an accepted standard or established type of normality; deviations upward no less than downward. It has reference to exceptionally gifted children as well as to the feeble-minded and abnormal. Between these extremes, the representatives of which are naturally few in number, there is a vast range of mental differences. Great numbers of children who are potentially normal are warped in their development and further endangered by faulty methods of education, environmental handicaps, disease and other causes. There are individual differences in the physiological and mental growth rate which, under traditional standards of education and measurement, throw children completely out of gear. There are the cripples, the blind and the deaf; those who suffer from psychopathic conditions; those whose otherwise normal development was checked at some time or other by determinable causes; and a large group of primitive minds such as are normal within their limits but representing a level of mental achievement long outgrown by the majority.

Whenever this problem is treated, there are three distinct points under discussion: First, the confusion of terms which has been one of the reasons why mental deficiency has received such a disproportionate share of the discussion of exceptionality. Second, the faulty standards of school education and scholastic efficiency which have stigmatized many children as defective who merely represented a difference in type, or a remedial handicap. Too many have been set down as backward, mentally inferior, weak-minded or incorrigible whose difficulty consisted in the fact that the "system" did not reach them. Third, the most potent cause of a misunderstanding of the situation must be found in the methods of testing which were employed when educators and physicians began to study individual children. Quite a large number of investigators have been led into believing that we have with us a large and ever increasing number of defective, feeble-minded children, and that it is this group from which are recruited the ranks of prostitutes and criminals, of human failures and wrecks.

Because these three points have not always been present in the minds of research workers, much confusion and apparent contradictions have arisen.

In the discussion of the first point I may be permitted to refer once more to my tentative classification which endeavors to establish a fair perspective for all types of exceptional development.

In the matter of *school adjustment*, it may be readily admitted that educators are now fully awake to the needs of individual differentation. The introduction of manual training, of special schools and classes, of pedagogical clinics and vocational guidance, of medical inspection and methods of child hygiene and of other similar agencies, has done much to alleviate the injustice which many children had to suffer in the past. The startling figures, established by medical examiners of school children, have begun to throw a dismal light on the conditions producing failure and deterioration. It was found that the prevalence of many diseases (other than the so-called children's diseases, like measles, scarlet fever, etc.), explained a great many of the handicaps which caused children to lose in the race for success in school. (For 4 per cent of all children were found to suffer from defective hearing; 20 per cent at least from nervous disorders; 25 per cent from eye-strain; as many from nasal obstructions. The list may be extended.)

How different *methods of testing* affect the findings, especially when there is obscurity in terminology, may be shown by many instances. Some investigators have placed the number of feeble-minded as amounting to 2 per cent of all children; while other investigators, in other localities, found considerably smaller percentages. On Ellis Island, where the medical examiners

recently introduced some interesting methods of rapid testing of immigrants suspected of mental defect, it has been shown that not more than 0.2 per cent can be called feeble-minded. Again, it has been claimed by some that the majority of the "incorrigibles" and juvenile delinquents were defective. But of the 1276 children who were arraigned during the past year in the Children's Court of Buffalo, only 53 were found to be retarded in mental development (a little over 4 per cent). Of these 53, only eight, or about 0.63 per cent of the total, could be pronounced distinctly feeble-minded, using the Binet Scale. In the Seattle Juvenile Court, in 1912, careful examination revealed only 6.4 per cent as feeble-minded, the majority of them so-called borderland cases. Even if, in some larger centers of population, the percentage of feeble-mindedness should be found to be greater, the methods of testing would have as much to do with the result as the local conditions of congestion, economic pressure, etc., and no sweeping generalization should be made.

In any system of tests that will give reliable data, the *causes of mental exceptionality* must be discovered as far as possible. The greatest difficulty will be offered in the study of hereditary and congenital causes, including venereal infection. For the information about family data will never be reliable until we have a national system of vital statistics. Careful records of births and deaths and their accompanying circumstances should be kept, including as much of the parental history as possible, and these data should be accessible for the scientific study of every individual child. The medical fraternity can greatly help these studies by establishing to the best of their opportunity the anamnesis and etiology of each case, and by carefully studying hereditary and congenital causes. Professional discretion will, of course, prevent physicians form making the facts thus discovered public; but it seems justifiable to expect their co-operation, if necessary by legal provisions, in those cases of grave defect where the state and the community have a deep interest. A commission composed of experts should be created in every state or community and should have full power to obtain all the information on a case in question such as may be obtained from anywhere.

Apart from such environmental causes as neglect, unwholesome companionship,, economic pressure, mistakes in education and the like, the causative factors of deterioration and delinquency are largely pathologic. There is often physical precocity or the reverse, producing tension between the various functional conditions of the individual. It is clear that a premature body will throw a less mature mind out of balance, through the superinducement of instincts for the coping with which the less rapidly grown mind is not prepared. Vice versa, an immature body will produce a strain upon an unusually developed mind. Then there are a great number of functional neuroses, quite clearly defined in many children who are serious problems to their parents, teachers, physicians and the courts. What has been called the "psychopathic personality" is by no means rare among children. Hysteria in certain forms can be observed in children. Epilepsy is another element but when it is a source of youthful delinquency it appears psychic in form; children show sudden attacks of excitement, outbreaks of temper, destructiveness, hitting other children, etc. Then we have cases of moral deficiency or weakness which is not infrequently coupled with intellectual keenness and which requires special methods of investigation and treatment.

Thus, the problem of juvenile delinquency has been clearly shown to be in a large measure a problem of medical survey and relief. Physicians attached to juvenile courts have testified to the fact that medical and surgical attention has cured many a "criminal." As the period of adolescence is the one furnishing the greatest number of juvenile delinquents, it suggests itself that disturbances in the sexual sphere, local or psychopathic, or as atavistic phenomena reverting to primitive forms of the instinct, are responsible for much deviation. Even pre-pubertal irritation has caused havoc. Sex abnormalties in the male and the female child, such as lead to rape and prostitution, have often a background of neurotic constitution.

Bearing out these contentions, Dr. Lilburn Merrill's findings in the Seattle juvenile court show the following causes of delinquency in the cases studied by him: 52 per cent were due to social and economic conditions; 29.5 per cent to physical pathology, including neurotic heredity, sex pathology (including phimosis), adenoids

and enlarged tonsils, malnutrition, cardiopathic conditions, sensory defects, etc.; 18.5 per cent to mental pathology, including moral deficiency, backwardness, epilepsy and feeble-mindedness.

From all this it will be seen that the testing of children for the determination of their supposed exceptional development is the essential prerequisite and is by no means a simple matter. A mere scale of intelligence, so-called, as for instance the Binet scale, can never give a valid measure of a child's status. There must be a thorough study of a child's history, environmentally and physically; there must be an understanding of his heredity, his education and a number of other points. It is therefore refreshing to read Dr. Merrill's sentence: "Any system of tests by which alone it is attempted to classify the child as being of a given mental age involves the fallacy of pseudo-exactness and needs carefully to be avoided."

The author of this paper has ventured to offer a set of tests and investigations which, while as yet by no means final, may illustrate what ought to be done. The complete form includes the following schedules:

First, a child history giving data previous to the time of examination; second, a set of body measurements; third, a system of medical and physiological examinations; and finally a scale of physio-psychological and mental measurements which, in conjunction with the other investigations, will allow of some sort of definite conclusion as to diagnosis.

The *child history* data comprise as full etiological statements as can be obtained, referring also to the family history of the case. They also provide for information on the child's physical, moral and mental development, his schooling, his peculiarities and habits, his abilities, attempts at relief of any difficulty, physical or mental, etc.; and it is supposed that the data are furnished by the parents with the co-operation of the family physician or the specialist consulted.

The *body measurements* are of the usual anthropometric type, including height and weight, chest expansion, girths and diameters.

For the *medical examinations*, several distinct blanks have been provided. The first is in the nature of a cross-section examination, giving a general picture of the child's physical condition. The succeeding blanks require the co-operation of specialists and suggest such special laboratory tests as will make the examination comprehensive. They ask for important anatomical data, skull measurements, x-ray photographs of the carpal bones, etc. Further data refer to the musculature and special characteristics, peculiarities of the face, of the genital organs, and the like. The functional charts are for a close examination of the special senses, chorea tests, neuroses, speech, heart, lungs, blood, etc. The newer tests, like the Abderhalden's, may be added.

Finally, in the working out of those tests which are intended to probe the mental reaction of the child, a distinction has been made between the *intelligence* tests proper, and those which refer to *physio-psychological* reaction. For example, the recognition and naming of colors are not in themselves tests of intelligence; they depend upon the physiological ability to distinguish color, and the ability to attach a name to a clearly differentiated color. A color-blind child will neither match nor name colors correctly no matter how intelligent he may be. Again, the visual and aural memory span is of great importance; but it is not in itself vouchsafing intellectual strength. Memory is the indispensable tool of the mind; but even idiots may have a remarkable memory which their mind may not use to advantage; and some highly developed minds battle with the freaks of their memory all their lives.

But both the physio-psychological and the mental development depend upon certain biological factors of growth. These have been reflected in the history of race development. It will be impossible to draw clear lines of demarkation between the chronological years in a child's age, as to his mental standard, inasmuch as the anatomical, physiological, psychological and mental growths do not run in parallel lines or at equal rate of speed in all individuals. But it is feasible to mark off, in a general way, certain *periods of development in a* child's life. These periods correspond broadly with the periods of race development, by way of a succession of ascending instincts and mental attitudes; also in the rate of reaction, in the matter of motor co-ordination and response, memory span, etc. The author has distinguished for such periods: the first being the primitive or human

animal period; the second, the race period in which race characteristics evolve from the general human potentials; third, the nation-forming period, which is concurrent with the pubescent stage; and finally, the period of individual differentiation which develops the adult of mature age.

The tests include sense tests, tests in judgment, association, motor co-ordination, expression, esthetic attitude, etc., and are elastically arranged so that omissions, substitutions and additions are possible without affecting the underlying principles.

The objection may be raised that such a comprehensive examination is impossible in general practice, or under the conditions of schools and courts or similar opportunities for clinical investigation. Without entering into a complete discussion of such an objection, I will briefly say this:

No examination which aims at rapidity can be thorough and reliable; it tends towards fallacious deductions. Even the strictest adherents of the Binet scale have been adding medical examinations and many other data to their scheme, and many Binet examiners have amplified the system itself by the introduction of further tests. One of the most ardent students of the Binet scale assured me that he considered it a grave mistake that physicians, especially neurologists, have fallen into the habit of using these tests for a rapid office examination of children, for the determination of their mental status. Even when a child falls three or more years below his chronological age—a condition which some think gives the Binet tests a chance of value—I have found in numerous instances that the conclusion of intellectual inferiority is not always tenable, as the child's opportunity for training has to be considered and the kind of tests used, and passed or missed, give a warped picture of his mentality.

Of course, an investigation like the one suggested by the writer will have to extend over some period of time, and cannot be completed in one sitting. But, to examplify my case, I will say that in the matter of juvenile courts, the detention home should be developed into an observation clinic where tests can be made at leisure and under easily controlled conditions. Every school system should have such an observation clinic, equipped with the proper apparatus and assistance. A number of the tests here suggested can be made in the schoolroom, upon many pupils at one time. Experience will teach the examiner where his results will allow of conclusions without applying all the clinical details. I have at present an arrangement under preparation which will automatically limit the examination to the essentials.

One of the most important helps which my tests have given, I think, is that they enable us to distinguish between *types of mind* in children. Mere backwardness, educational neglect, simplicity and primitiveness of mind have too often been confused with true mental defect. Many of our delinquents, *e.g.*, are primitives, not feeble-minded. You cannot call the Mexican peon, or the follower of Zapata, a feeble-minded person; yet, his instincts, his valuation of life, his ideas about property differ so essentially from our modern standard that he would constitute a criminal, actual or potential, in our American civilization. Thus, many of our delinquents represent a type parallel to this primitive stage.

In these primitives, we have borderland cases where there is a mixture of retarded and arrested development, and of mental defect of the psychopathic type. We must be careful in differentiating these types for the sake of scientific accuracy, even though the treatment of individuals representing these types may not always have to differ in kind. But it is clear that the term "mentally defective" includes both the feeble-minded and the insane.

I may be permitted to illustrate at least some of my points by quoting a few cases briefly from among those that have come under my observation.

The first two cases were referred to me by the Juvenile Court of San Francisco, last year:

*Case 1.* F. C., boy, aged 15 years. Reported because he is unable to retain any job, and has become practically a vagrant. The mental tests proved him to be intellectually very immature, and certainly badly unschooled. His physical condition showed that he would have needed special treatment for many years past; septum deflected on right side of nose; with great obstruction to breathing. Nasal catarrh. This constituted so constant an irritating condition that it required immediate surgical relief. Hearing reduced by two-thirds in right ear with occasional discharge indicating otitis media and calling for treatment to prevent further deafness. The boy proved to be an

epileptic, with attacks dating back at least two years. On the basis of these findings the following report was sent to the Court: The boy is unable to undertake independent employment. Should have surgical relief and be placed in a home for epileptics where also his manual faculties may be developed. He is entirely unfit for education in the public schools.

*Case 2.* F. J. F., boy, aged 16 years. Had been arrested for repeatedly attacking his father, even his mother, and not doing well at anything. When brought to clinic was handcuffed, sullen. His mental development, was found to be exceedingly uneven. He showed much power of rational judgment together with singular retardation in specific applications. He gave the impression of a mentally neglected child. He represented a transition period from childhood to adolescence with all the mental disturbance characteristic of that epoch. Emotionally he was under a distinct strain, being sullen and antagonistic under unsympathetic influences such as his home represented, but yielding to personal sympathy. He was hardly mature or trained enough for independent work. The medical examination revealed catarrh of the throat, enlarged turbinates which obstructed the nasal passages, and a long adherent prepuce. Nasal treatment and circumcision were indicated for immediate relief, and it was suggested that he be placed away from home somewhere where he would have firm but kind discipline and special training without stigma.

His case suggests the fact that it is easier to make such a recommendation than to have it carried out. At the present time, there are hardly any places in existence, under public control, which would have given this boy a chance. Reformatories, so-called parental schools and the like, as they are now organized, are not the things needed in such a case.

The following cases I have had under observation in the East, in part in our institution for atypical children, at Watchung Crest:

*Case 3.* G. S., boy, aged 15 years. Very backward in school when first reported, and a bad stutterer. Extremely nervous and morbid from infancy, and given to tempers. His principal physical troubles were the following: Diminutive in size for his age, and sexually underdeveloped. Very defective eyesight, through muscular insufficiency. Readily fatigued. He has no visual perspective, owing to his defect, and his visual and aural memory span is limited. At present, a year after first reported, has improved splendidly in every direction under training. Has acquired considerable ability to concentrate and to endure, also to control his speech defect. His backwardness has been in part overcome since his difficulty was understood. Organized manual work, especially outdoors, has helped him to develop muscular control and generally in physiologic function.

*Case 4.* R. F., boy, aged 17 years. Of good appearance, above average in size; good conversationalist and apparently intelligent, with ability to do a number of ordinary things. But he, the son of wealthy parents, had never done well and had recently drifted into bad habits, undesirable companionship and even delinquency. The medical examination was largely negative except that circumcision was strongly indicated to correct preputial hypertrophy and his bad sexual habits. The mental tests revealed the causes of his somewhat shiftless and dangerous life. Visual and aural memory very poor, and what was retained was not retained in proper order. Muscular memory unreliable, sense of balance impaired. Reproduction of oral information only fair. The judgment tests showed distinct weaknesses; where he succeeded he needed much time and the opportunity of a second and third attempt. His methods in manual and art expression were distinctly primitive. In language, he was quite proficient and could talk very intelligently; yet, when he was to formulate his thought in writing, he was vague, and loose in construction. It was plain that this boy, having grown up without the proper recognition of the special training he needed, could profit little from ordinary school instruction and influences. When let loose, he had no perspective of situations and causal relations, and could not learn quickly enough from experience, owing to his unreliable memory. He had, however, sufficient intelligence at bottom to be helped towards considerable improvement through a kind of training which took his needs into consideration. He became a very tractable and very much better boy, and has good prospects of becoming finally saved if he can be long enough under the reconstructing influence.

*Case 5.* L. D., boy, aged 17½ years. This boy recently barely escaped being placed in an institution for the feeble-minded. He had been unmanageable, inefficient, morbid with suicidal tendency, backward and given to many forms of sexual perversion. His medical examination gave a clue to his mental difficulty. Weight and height above normal, making him very heavy for his age. Flat-chested; heart beat somewhat weak and râles in right lung. Network of varicose veins on both buttocks. Sexual organs show contrasting development; overgrown penis with entirely undeveloped testicles. Had been masturbating since childhood; indulgence in homo-sexual practices resulted in funnel-shaped rectum which caused chronic constipation. Careful exercise in the open air and special treatment relieved these serious conditions so markedly that a great change has come over the boy. His sexual inverted acts have ceased. His mental tests, after his main difficulties were removed, proved very satisfactory, showing him to be an absolutely normal boy, with creditable power of judgment, logical and associative faculties and good concentration. His memory span in visual and aural impressions is still narrow, and he has difficulty in graphic and constructive expression, being rather primitive in these things. The boy is plainly capable of considerable advancement, and with the further improvement of his physical condition there will come a gain in temperament, application and perspective. He needs atten-

tion to prevent a recurrence of the neuropathic condition which underlay the other symptoms. He needs training in memory, mental coordination and discipline.

Were my time not limited I should wish to present another interesting case in detail. A few items must suffice. The boy, now twenty, is distinctly primitive; to call him feeble-minded in the accepted sense, would seem a superficial valuation. He is still very backward in his school studies, and did some absurd things in his judgment tests. Yet, in others, those that required action of some kind, he did remarkably well, showing considerable penetration and quickness to learn a new thing. Thus he learned to do all the five tests with the Knox cubes; connected 100 dots rationally and immediately; was normal with his formboard and the dissected pictures, etc. His drawbacks were, first, his extreme slowness in response, and second, his very narrow memory span, both visually and aurally. They account for his difficulty in learning and in building up a conceptual world on the basis of experience, for he cannot well learn from his so easily forgotten errors and experiences. The boy shows other faults which would stamp him ordinarily as a criminal. He has dirty personal habits and has a strong inclination to pilfer eatables and glittering things, jewelry, money, etc. The money can have no attraction for him as he does not understand its value; neither has he any conception of the value of jewelry. There is simply the attraction of the tempting objects and the tendency to hoard, even though he forgets the hiding places. Again, even when he has had a full meal he will steal eatables in large quantities and gorge himself to nausea. All these traits are distinctly those of savage people, and would be altogether normal among the Igorotes, New Zealanders, and the like. In other respects the boy shows intelligence, is goodhearted, companionable and unselfish, likes to work, on a primitive level, and is as harmless as a child.

This in an extreme case. But if you think of the racial strata that produce the Black Hand crimes, the Mafia, and similar outcroppings of an underdeveloped moral conscience, you will admit that we must recognize the existence of civilization levels in modern society which broadly correspond with the types of lower civilizations of past ages. Here we are dealing, not with atavistic or degenerate individuals, but with groups and with layers of society. In some instances, as with the Camorrists of Italy, we may discover distinct psychopathic epidemics, closely allied to epilepsy, hysteria and mania.

It will have impressed you that in many of these cases the visual and aural memory span is short, which prevents the child from profiting by experience. Again, there is very often some functional neurosis or some other disturbance of normal functioning.

From all this it will be seen that we must agree on some suitable classification and terminology so that there would be no confusion. We must distinguish as clearly as possible between fundamentally different types of exceptional development. We must further recognize that only a small number of exceptional children belong to the unredeemable type, to the human refuse heap, so to speak, and that the vast majority even of the distinctly handicapped children may be saved for useful citizenship, by proper methods of diagnosis and training. And finally, it is plain that a reliable diagnosis must depend upon a really thorough study of a child's physical and mental condition. Whether or not the system of examinations suggested by the author of this paper will stand the test of further experience, or not; I hope you will agree with me that something of this sort is needed. There must be medical and pedagogical co-operation, and legal methods must be devised by which the status of the exceptional child can be better determined. In the medical field, the psychopathic and neuropathic aspects of the problem are becoming more and more recognized and the co-operation of this great body of research workers is therefore most urgently invited.

---

## ORGANIC BRAIN LESIONS IN MENTAL DEFECTIVES.

Wm. J. Hickson, M. D.
Director Psychopathic Laboratory, Municipal Court of Chicago.
CHICAGO, ILL.

In my work at Vineland I examined all admissions, physically, where I observed a much larger percentage of heart murmurs than occurs in a corresponding number of normals, also a larger proportion of significant stigmata of degeneration; psychiatrically, where I found that the proportion of cases of dementia praecox, (grafted on feeble-mindedness), was greater than in the general population; and neurologically, where I found that every case of feeble-mindedness I examined admitted to the institution from the highest to the lowest grade showed organic brain lesion. It is these latter cases that I wish to discuss in this paper.

I had noticed this fact in the cases that came under my notice previously, from time to time,

but I never had them "en masse" where I could realize this fact in all its significance, that all cases of mental defectiveness and perhaps mental defect, show organic brain lesion, that is a lesion anywhere between the cortex and medulla oblongata inclusive.

My report is based on one hundred cases examined as they were admitted to the institution at Vineland, and twenty-five cases of the high grade borderland type of delinquent selected at random and examined in the Psychopathic Laboratory of the Municipal Court of Chicago, This group of 125 cases was examined specifically with the object in view of studying intensively the significance of always finding organic lesions in all these cases, to further substantiate or refute, if possible, the theory that there is no psychoses without neuroses, and no pathopsychoses without pathoneuroses.

We could, of course, augment our findings in these cases by referring to the large number previously examined at various times and places. We regret very much that we have not more cases examined from the delinquent class, as here such findings, if substantiated, will be of very great significance. Our laboratory, however, has been open only about ten weeks and our time has been taken up more or less with its establishment, and it is for this reason and not lack of material that we have examined so few.

The number of cases not out on bail, handled in the boys' court, daily averages about 38. A large number of these are repeaters. If there were not so many repeaters among these boys the task of making physical and mental examinations would be quite a formidable one, but as you see, it will not be long before we will have caught up with the old ones and the task of examining the new ones will not be so great.

It is a noticeable fact that we have very few negroes come into the court, and those that do, so far, have tested quite high. It looks from our experience that feeble-mindedness, as such, is rather rare with full-blooded negroes. If this is so, and whether there is any connection here between the absence of metasyphilitic affections and alcoholism in the negro race, remains to be seen. On the other hand, tuberculosis, which is considered one of the intrinsic as well as extrinsic causes of feeble-mindedness, is very prevalent in the race.

Before going on with a description of the neurological findings, it might be well to discuss the tests a bit on which our diagnoses of mental defectiveness were made. The mental test used at Vineland was the Binet-Simon. At Chicago we have been using the Binet-Simon, Rossolimo, graduated association, and the common tests used in the psychiatrical clinics of Berlin, Zuerich, Giessen, Munich and other cities, as the Binet-Simon test has only limited applicability.

The Binet-Simon test, as you know, only covers the ages from 3 to 12, and is consequently of very limited use in work with the feeble-minded, who test above twelve years, and we feel that we must condemn the practice of those, unfortunately at present too numerous, whose diagnostic ability is limited to the Binet-Simon scale, from certifying everybody who can pass the twelve-year old test, as of normal mental intelligence, also of marking adults who might not quite finish the twelve year test, as 10, 20, 30, or any number of years backward, depending on their age beyond eleven or twelve years. The most that could be said here, since the intrinsic mental development ceases at the highest about twenty-five years, is that the greatest difference could only be that between what was recorded on the scale and age twenty-five. Another equally unjustifiable use of the Binet-Simon scale is to diagnose all cases who scatter, as insane, or epileptic. That the insane and epileptic may scatter on the Binet-Simon scale, especially when grafted on feeble-mindedness, no one will deny, but that everyone who scatters on the Binet-Simon scale is insane or epileptic, we must emphatically condemn. Scattering, however, is often a sign of beginning arrest of development. The Binet-Simon scale has many uses of a qualitative as well as quantative, and also even prognostic, nature in younger children, but is not an off-hand method of psychiatric diagnosis through scattering. We have had many cases who have tested plus throughout on the Binet-Simon scale, and yet were outspoken cases of dementia praecox, epilepsy, etc.

The Binet-Simon test has been standardized now in France, Germany and America, and has been used on large groups in other countries, but we find the giving of this test is just as much in need of standardization.

At the end of six weeks of our work in the laboratory we made a report before the annual meeting of the American association for the study of the feeble-minded, held at Columbus, Ohio, June 18, last, on the findings in the boys' court, in relation of mentality to delinquency, "The Defective-Delinquent." In that report we stated that up to that date we had examined 245 boys. 207, or 84.49 per cent were morons; their average chronological age was 18.71 years; their basal age 8.69 years, and total mental age of 10.98 years. 20 of these 245 cases, or 8.16 per cent were borderland cases, with an average chronological age of 20.10 years, a basal age of 10.42 years, and a total age of 12.27 years.

We found only 18 cases out of the 245, or 7.34 per cent who gave a normal mental development, with a chronological age of 20.94 years, a basal age of 10.83 years, and a total mental age of 12.70 years. Some of these showed mental defect in contrast to mental defectiveness.

It is interesting to see at what ages the boys first get into court; the lower the mental age the earlier they get into the toils of the law.

In order to mark above twelve, we have been using some questions suggested for fifteen years and adults, which have failed in an attempt at standardization, since they almost all test special rather than general traits, but nevertheless, if the case could answer any of them they were credited, and if not, there was no loss as we made it a rule to fall back on our other tests as soon as a case attained a basal year of ten or higher. This we found from experience to have been a wise precaution. Many cases doing well in eleven or twelve years would be found wanting on our other tests on which we rely, and many passing eleven and twelve-year tests failing on our others. We regard the eleven and twelve year old tests to be less reliable than the others of the series.

We have, however, one further test, which we have not yet mentioned, but which is the most practical and reliable of them all, and that is the world test, the economic test.

The segregation of these cases in the Boys' court has enabled us to discover that in addition to the physiological and psychological critical periods of a youth's development, there is also an economic or sociological critical period, the ages between 17 and 21 inclusive, with which this court deals. These are the years when the boy is beginning to have responsibility thrust upon him, when he is expected to pull his own weight in the boat, to become independent, to find a place and make a place in the world. This is the most objective, adamant and critical test of them all. This is the crucible which tries them out when the assay is made.

The records on our boys show that they fill only the simplest, humblest and poorest paid manual occupations; that they rarely hold a position more than a few weeks or months and the few that do are the first to be laid off when retrenchment or efficiency comes into play. Social workers, big brothers, complained, wondered and did not know why their charges did not succeed until we brought to light the facts about the mentality of these delinquents. These boys are the waste material, the human driftwood of the economic-sociologic world.

The latest classification of the feeble-minded in America depended on the Binet-Simon scale, which, as we know, only goes as high as twelve years, and consequently is not applicable in detecting this large class of socially unfit, those cases of feeble-mindedness of a decided nature sufficient to prevent the successful meeting of conditions in the world. This classification is as follows: below 3 years idiots; from 3 to 8 years, imbeciles; and from 8 to 12 years, morons. It was too bad that the classification of morons had an upper limit of 12 years, for it omits an important group of feeble-minded whose condition first becomes conspicuous towards maturity. The age between 17 and 21 is a good age in which to diagnose mental deficiency, as before that it is often difficult to detect mental defectiveness and mental defect from simple mental retardation.

We must apologize for coining a new word to meet this group of economically inefficient cases, since the word moron, firstly, is not distinctive of the economic significance of these cases and, secondly, that it has gone into the literature as standing for those ages between 8 and 12, and, thirdly the morons are seldom even able to get along in the outer world under any conditions alone, while the other class do make the attempt and I, therefore, with great regret for the necessity of adding a new word to our already overcrowded vocabulary, suggest as a name for this

class of mental defectives testing over twelve, and economically and socially unfit, the name of "Sociopath," which fits in very nicely with the words neuropath and psychopath, already in common use. The work of the Boys', Domestic Relations and Morals court is largely sociopathic as a large proportion of their cases are the economic unfit defectives.

The neurological condition which I am about to describe is generally known as infantile cerebral paralysis; spastic paralysis; spastic hemiplegia, infantile type or infantile hemiplegia. Under this heading we include the diplegias or Little's disease the paraplegias, etc. Of course, pseudobulbar palsy of the paralytic or spastic type is often present or accompanies these other conditions.

The 100 cases examined systematically at Vineland ranged in years from 5 to 25, and about two-thirds of them were males. The 25 cases examined from the Boys' Court in Chicago ranged from 18 to 21 years, and were mostly high grade borderland cases mentally. Besides these we had several cases ranging about 6 years, sent us from the courts for one reason or another. Of course, it is hardly necessary for us to say that we have controlled our examinations sufficiently on normal people, though we are not prepared to say yet that there might not be some cases, rare at any rate, which show some of the reactions of a spastic paralytic nature, and yet no mental defect or defectiveness can be determined. But we are sure that every case of mental defect or defectiveness in our group showed the reactions of the spastic paralyses.

The infantile type of hemiplegia is differentiated from the adult type in that it does not follow the Wernicke and Mann predilection type of involving certain muscle synergisms. The older the child, the more developed the pyramidal tracts, the more prone are the paralysis and contractures to follow this predilective type. This is also a help in differentiating the congenital from acquired mental defectiveness.

When we strip our patient we often notice that the part of the body involved shows some lack of development. If it is a hemiplegia, one-half will show poorer chest development of that half, oftentimes of several centimeters. The shoulder blade and muscles, the buttock of the side and leg, will all show an inhibition of growth; this is also quite in contrast to the adult form.

We will next notice perhaps that one or both large toes, oftenest one, is in a condition of continuous extension, much further extended as a rule than can be produced intentionally. This is a very common symptom, the continuous Babinski. If this is not present we try for the Babinski in the usual way. Many times if we do not get a Babinski we are not, at least, able to elicit plantar flexion. We then try the Oppenheim and find it present quite often. We also find very often a contralateral Babinski, or Oppenheim and often we find a Babinski on one side and an Oppenheim on the other. We have often brought out a difficult Babinski by a summation of stimuli. Another very good method that I have discovered is the re-enforcement method of Jandrassik, which was originally suggested by him to elicit difficult knee jerks. This seems to produce its effects in the same manner as a concomitant movement, which we see so spontaneously in these infantile forms in contrast to the adult form where an intended effort of a sound or involved limb will produce movement in the other which is so noticeable in the deplegias producing an agitation of the whole body when much effort is made, we see the normal physiological expression of this concomitant movement in the child before development of the pyramidal tracts. Another method for eliciting the Babinski is planter flexion of the foot. This is also peculiar to the infantile hemiplegias. In walking across the floor we often notice an extension of the large toe. We then try the Mendel-Bechterew, but so far I have never been able to elicit it. We occasionally elicit a Rossolimo and a Gordon, the latter more rarely, and it sometimes gives a contralateral reaction.

We find ankle and patellar clonus very frequently sometimes being elicited on tapping with the reflex hammer in trying to elicit the achilles and patellar jerk. We found the two latter reflexes, with few exceptions, always increased, though they are not always increased to the same degree in any particular case.

The cremaster and the upper, middle and lower abdominal reflexes we found variable, but almost always altered. Sometimes they would be increased, sometimes absent. The biceps, triceps and periosteal reflexes were, as a rule, in-

creased, though these we found much more variable than on the lower extremity. This might be accounted for on the possibility that most of the arm and hand movements being trained, and fine movements have developed on some remnants of the pyramidal tract which acts in its inhibitive capacity in contrast to the leg movements which are our original movements and stand more in relationship to the subcortical centers.

Involvement of the lower facial branch is very frequent, the upper being phylogenetically the older and therefore more under the influence of the subcortical centers is rarely involved. It is rare to hear the inmate of an institution for the feeble-minded whistling.

We next examine for spastic symptoms and contracture. One of the most common contractures in these cases is the equinovarus position of the foot, often accompanied by marked arching. We often see contractures of the hand in these cases where, in contrast to the adult type where the thumb is folded in the palm of the hand, in the infantile type it is extended along the index finger. These phenomena are not uncommon, especially the spastic symptoms; the contractures very often are not well pronounced.

One can often recognize the hypertony of a muscle by the touch, and one can bring out almost always some spastic symptoms by trying out the different ab and adductors, the flexors and extensors, and the inward and outward rotators of a limb. This search carried out systematically almost always brings results. We, of course, refer here to the later spastic symptoms and not the early ones which seem to be due to irritation of the lesion, through infection, etc.

A very large number of these cases only show residuae of their paralysis. The older the case, as a rule, where the lesion was congenital, the more fleeting the symptoms, as the subcortical tract, being brought into play early before the pyramidal tract was developed and superseded it, takes over a great deal of the innervation that would have been cared for by the cortico-pyramidal tracts. Much of the damage is overcome through the vicarious action of the subcortical centers and the homolateral pyramidal tracts, though these latter are very poorly developed in man, but more highly developed as we go down the animal scale. Where both pyramidal tracts have been involved the chances for re-learning are almost nil.

The diaschisis action no doubt also plays a part here in elimination of symptoms, with time.

One has to be very resourceful at times to bring out all the symptoms present, especially in the residuary cases, but with patience I have never failed to find sufficient symptoms to justify the diagnosis of an organic lesion. These diagnoses, especially in the lighter cases, should only be undertaken by an expert neurologist and preferably one who has had considerable experience with the hemiplegias.

It might be interesting to add that in the one hundred cases examined at Vineland, eight of them were of the Mongolian type, running all the way from the low grade Mongolian idiot to the high Mongoloid type, and they all showed the same type of lesion as the ordinary feeble-minded. This is interesting since some believe that these cases are different from the ordinary feeble-minded and would make them the aristocrats of the mental defectives, but I have found nothing in my investigations to justify this, but rather the contrary as I find the same bad heredity, the same family conditions and also the same brain lesion as we do with the ordinary feeble-minded. The only difference is that in the Mongolian type the ductless gland system seems also involved. I would also like to mention here two diagnostic signs in these cases that often help one to a diagnosis, especially in the Mongoloid form, and that is the characteristic wrinkling of the palms of the hands and soles of the feet, which is similar to the furrowing of the tongue, which trio of symptoms I have never seen absent in a case.

We also examined a cretinoid who had brain lesion and who failed to improve on thyroid.

I have also resorted to other measures to corroborate these findings, especially in the light residual forms. It has been proven experimentally that the feeble-minded have a lower blood-pressure than normals, and the Mongolians lower than the rest of the feeble-minded. I found, using the Faught instrument for measuring blood pressure, where the case was one of hemiplegia that the affected side invariably registered from five to eight and even ten millimeters of mercury lower than the sound side.

The ergograph shows very plainly the side in-

volved. I also used the dynamometer, which gives clear-cut result. The affected extremities are also, as a rule cyonotic and colder than the sound side.

My notes on the intactness of the sensory side of the cord on these cases are somewhat incomplete, on account of the low mentality of many of the cases, from whom it was impossible to get an intelligent response. On the whole the superficial sensibility seems pretty well preserved. Pain, touch, hot and cold were almost always appreciated. The stereognostic sense in a great many cases was involved. They would know the article was glass, metal or wood, but would not know its nature. It is possible that the absence of contractures in so many of our cases could be explained on the ground of involvement of some of the deep sensory tracts. We know that a tabetic, or a diabetic or arteriosclerotic with cord involvement does not acquire the typical contractures of the adult after an apoplexy.

I have not gone into a discussion of the various theories as to the mechanism of the signs of the paralysis, as the facts in the matter are at present too little known experimentally. The anpresent too little known experimentlly. The anatomy and physiology of the cortico-spinal tract are well known, but the sub-cortical tracts and their connections and relationship to the former are too little known.

In addition to finding these lesions in mental defectiveness we have been also finding them in cases of mental defect, by which we mean cases showing moral defect, formerly called moral insanity, or moral imbecility, cleptomania, etc. By mental defect here we mean the same thing as occurs where one has a defect for instance for music, mathematics, languages, spelling, etc. Many of these cases are the pests of the teachers in school, because they do not understand them. We had for instance a boy aged five chronologically, who was precocious mentally, testing age 7, on the Binet-Simon scale. He was sent to us by the court for certification for adoption. He had been returned after a few weeks trial by several of his foster parents because he manifested sadistic tendencies. He slaughtered chickens, cats, tortured insects and attacked a baby. This case showed an outspoken spastic hemiplegia of the infantile cerebral type. We are often asked for suggestions as to treatment in these defect cases. If my neurological findings are substantiated it will be readily seen that at the present time we have no treatment. Our experience in the treatment of these defects would tend to substantiate our brain findings, for it is one of the most hopeless of tasks to teach one with a defect for music to sing, ar one with a moral defect to be honest and truthful. However, this situation is not entirely hopeless. The psychoanalysts would suggest that these sadistic tendencies might be sublimated and carried over into useful fields. The sadist might be made a butcher or a surgeon. We know of one case of a feeble-minded boy with pyromaniac tendencies who was set to shoveling coal all day in the boiler house, and he has made the best stoker they ever had, doing twice as much work as any of the others.

The lesions commonly found in the infantile type are the agenesis, porencephaly, hydrocephaly, lobar and tuberous sclerosis, cysts, residuae of inflammations, hemorrhage, etc. At the present time there is no treatment for these conditions. Prevention is the only weapon we have to meet the situation with. Re-education thus far in the adult hemiplegias is not very hopeful. We have to depend too much upon our corticspinal tract in civilization, so that the older we get the more it acquires the habit of independence of the subcortical tract and the more useless the subcortical centers become to us, especially for fine coordinated movements, the hands in contrast to the feet, for instance.

With the anthropoid ape whose neurological reactions approach the nearest to man the motor cortical centers may be removed and if the animal is allowed to run free he will acquire no contractures. On the other hand, if he is given little freedom he acquires contracture closely resembling the contractures in the adult hemiplegics. The apes' neurological reactions more closely resemble those of man than they do those of the lower animals. Yet the difference is great enough in the greater importance of the cerebrum to man that the destruction of the cortex is a much more serious matter. Some of these cases might be prevented by taking more care of the mother during pregnancy, but the hereditary cases offer no such hope, as the causation lies further back. Each of the six autopsies I had at Vineland showed agenesis and anomalies of other organs, such as hypoplasia of cardio-vascular sys-

tem, supernumerary spleens, that is one to two extra spleen-like bodies about the size of peas or marbles, and anomalies of development of the genito-urinary system, etc.

The matter of the dependance of man on his cortex in contrast to the lower animals should receive more attention. Many schools for feeble-minded entirely disregard this factor and the children are put at craftsman's and other work requiring fine co-ordinated movements that would tax the energy of one with an intact nervous system, and I have seen serious outbreaks of hysteria and katatonia in predisposed feeble-minded caused by the severe exertion necessary for them to put forth to perform such fine movements with involved cortico-spinal tracts. These cases should all be seen and their work prescribed for them under consultation with a neurologist.

The records put out on these cases by some invesgators as to their will power, as measured on the dynamometer, their vital capacity on the spirometer, etc., which in conjunction with their standing and sitting height, and called their vital index, also needs the censorship of a neurologist. It is quite likely that much of the automatism, etc., occurring in the feeble-minded, is due to destruction of these same pyramidal tracts and leaving the field open, uncontrolled to the reflex type of action of the subcortical centers.

If our findings in regard to these lesions are substantiated their significance and confirmation of our mental tests will materially help revolutionize the treatment of these cases in the courts, to say nothing of their bearing on questions of psychology, especially behaviorist and abnormal psychology, philosophy on the question of determinismus, interaction between mind and body, etc., and economically.

It will enable us to substantiate most effectively our borderland cases of feeble-minded. It will help us readily to detect simulation. It will eliminate one of the latest theories that there is a unit character of mental defectiveness, though a predisposition to maldevelopment or degeneration of the nervous system might be inherited similar to the hereditary family muscle degenerations which are in certain forms accompanied by mental deterioration.

These findings are of the greatest importance to the business man who cannot afford to have sociopaths in his employment. There is no telling how many accidents on land and sea and in factories have been caused by this class of mental defectives. This class should be eliminated from the witness stand, juries and other responsible positions, where careful judgment is demanded.

The next and last question is, since we have no other treatment than prevention for these cases, what are we going to do with those we have. The only two suggestions thus far made have been segregation and sterilization. There is one other method which might be offered for discussion, because it is being so widely recommended in Germany in certain cases and is being carried out in America and in fact the whole civilized world for certain other conditions, and that is the legalization of abortions in these conditions, securely safe-guarded from abuse.

I cannot close this paper without acknowledging the great debt the laboratory owes to Chief Justice Olson, and also to his continued support and encouragement.

DISCUSSION.

Dr. McCready: I am very much interested in Dr. Hickson's paper and very much interested in his findings. They open up a new field in the study of the feeble-minded.

Dr. Grinker: Dr. Hickson's paper is most excellent but he has made one statement that, if true, is to me a revelation. It is somewhat in line of some observations that I have made at the Post-Graduate and at the Northwestern Medical School as well as at the Cook County Hospital, and that is, the negro who is subject to syphilis develops paresis and tabes rather rarely. General paralysis was almost anomalous. We know they are frequent, but on the whole, general paresis is not frequent. Now, here's a case where Dr. Hickson tells us something more in the same line; even feeble-mindedness is rare in the negro. I would like to know on what he bases his opinion. Has he had delinquents for examination? That is a question. Has he considered the environment? As regards another part of his paper—I agree in his statement that not every exaggeration of reflexes means organic disease and another point, we all know the difficulties we have to contend with in the examination of normal individuals. We know of the inability of relaxation. I must commend Dr. Hickson upon the excellency of his report.

## THE RELATION OF ADENOIDS AND TONSILS TO MENTAL DEFICIENCY.

ARTHUR M. CORWIN, M. D.,
CHICAGO, ILL.

The case against the adenoids would seem to be sufficiently overwhelming, purely from the

physical side, to force a verdict for speedy and severe punishment without extenuation. Here it is in epitome:

Mutilation of good looks by the typical elements of the adenoid facies, first recognized and described some fifty years ago, though accurately portrayed in paintings and sculptures that have come down to us from ancient days—elongated, narrow face, open mouth and hanging prognathous under jaw; poorly developed upper maxilla with irregular, projecting teeth; nasal bridge often broad at its base though laterally pinched at the alae; naso-labial fold nearly obliterated; inner canthus of the eye drawn down, drooping lids and bleary, lusterless eyes; the whole expression one of dullness and vacuity.

Add to this unfortunate appearance chronic nasal catarrh, snuffles, serious deafness, otitis, mastoiditis, infected glands of the neck, retropharyngeal abscess, brain abscess, pharyngitis, thoracic deformity, pulmonary insufficiency, and increased tendency to tuberculosis; increased liability to acute infectious diseases; dyspepsia, embarrassed sleep, snoring, restlessness, suffocative night terrors and enuresis; under size and under weight; headache, dizziness, flat toneless voice; interference with the pronunciation of certain consonants, b substituted for m and d for n; reflex dry cough, especially at night; asthma, stuttering, stammering, laryngismus stridulous, chorea, convulsions and even symptomatic epilepsy.

As secondary to adenoid influence, also, have been chronicled various eye troubles, phlyctenular ulceration of the cornea, eczema of the cornea and retinal irritability. Whether these lesions were directly due to the presence of the glands as sources of infection and disturbed circulation, or indirect results of impaired general health does not so much matter. They have been cured by efficient removal of the offending glands. As interrupters of useful vision in children, such disorders are evident handicaps to mental development.

This array of possible and not uncommon physical sequelae would seem enough to guarantee early solicitous attention for all cases and radical treatment. For surely there is beside the morbid adenoid no other affection of childhood that is so common and so far-reaching in its malign influence upon comeliness, comfort, reliability and individual usefulness.

Recognizing that lymphatic tissue in the pharyngeal vault as well as between the faucial pillars is present in some degree in all persons, it is most important to know that symptomatic hypertrophy of adenoids probably occurs in twenty-five to thirty-five per cent (one-third) of all children between three and ten years of age. Some authorities have placed the percentage at seventy. This is much too high, except to include the mere existence of lymphoid tissue, not sufficiently enlarged or diseased to produce symptoms or require treatment.

But it is the direct and remote results of their abnormal presence upon mental and moral integrity that we are here counting as specially damning evidence. Among four hundred children at Bologna, Bonazzolo found that one hundred and forty-one displayed great lack of the power to concentrate attention, and therefore were backward students. In all but twenty-four of these, adenoids existed, and the twenty-four without them had nasal obstruction from some other cause. These children were neurasthenics. They are duplicated by the thousand in every school community as intellectual dwarfs.

In New York it was found that in a school population of 650,000, thirty per cent of the children were about two years behind their grades, and that ninety per cent of these were delinquent because of removable eye, ear, nose or throat lesions. Dr. Cronin found, in New York schools, one hundred and fifty marked defectives who were very backward in their studies and incorrigible in character; 137 of them had enlarged tonsils and adenoids. These were removed, and in six months they were re-examined. All were doing well in studies, and their characters had undergone marked improvement.

It has been estimated that forty thousand children annually in Minnesota have adenoids that retard them one year in work. One year's schooling in Minnesota costs the state twenty-five dollars per child. It therefore, costs Minnesota one million dollars extra per annum to educate these retarded children, an amount easily saved by a simple operation.

In the United States twenty million children constitute about twenty per cent of the entire population. Of these twenty million children, it

is estimated that seventy-five per cent suffer from some remediable defect, more or less formidable, six million of them having operable adenoids.

The lack of attention, aprosexia, and lowered power of memory, resulting from typical adenoid obstruction and irritation are responsible for an enormous amount of backward and deviate mental development originating in infancy. The child is unable to apply himself to his prescribed work. Thus handicapped he falls behind his fellows and fails to catch up; he is accounted a dunce; he is punished by his teachers and parents, ridiculed by his mates, and soon finds other matters to take his attention. He grows sullen, apathetic or mischievous, and is considered incorrigible and a nuisance. Truancy, a bad reputation in his neighborhood, the Juvenile Court, the reformatory and the prison record are easy sequences, as expressed in terse form by Judge Mack: "Straight road from adenoids to penitentiary." This is more than an occasional experience, especially among children of the poor.

In eighty-five to ninety per cent of all adenoids there is involvement of the Eustachian tubes, with deafness of varying degree, which tends to be progressive, even when not made irremediable by serious infection of the middle ear. "When deafness is marked before the child learns to talk, he remains a mute, or if he becomes deaf at five or six he is apt to forget how to talk." Helen Kellers, with Mrs. Sullivans as teachers, are rare combinations. The vast majority of these unfortunates are stunted in mind, not because of initial organic deficiency of brain cells, but because of faulty nutrition, on the one hand, and want of proper training, upon the other. It is common observation how quickly the loss, even a partial loss, of hearing changes the whole nature of an adult. Embarrassed by his inability to catch the trend of conversation, sensitive as to his affliction, many such individuals draw into the shell of silence, become despondent, isolate themselves, lose their desire to converse, and therefore lose one of the most powerful stimulants to mental growth. How much more the dwarfing of this sensory loss in childhood!

Blake, of Boston, found decided deafness in 39 out of 47 children examined, and after removal of adenoids 35 showed marked improvement in hearing. This is a fair sample of the experience of those who have had much personal operative experience, or observed the results of others.

In this connection it is interesting that "ideoglossia (faulty subjective audition) due to biologic defects of the hearing word center without objective deafness may be closely simulated by peculiarities of speech dependent upon certain degrees of objective deafness." This fault of speech is "due to certain deafness from middle ear disease which prevents the child from hearing sounds, except those of a certain pitch and intensity," owing to lesions within the ear itself. Such are frequently due to post-pharyngeal lymphoid vegetations.

"On this account in some cases after adenoidectomy with real improvement of hearing, special training is required to educate the child out of the habit of wrongly interpreting what he hears."

In adults afflicted with chronic nasal obstruction, how frequent the vicious combination of headache, intranasal irritation, photophobia, infection, anemia, dyspepsia, insomnia, and symptoms of neurasthenia. Inability to attend to business or concentrate interest upon anything but the suffering involved has driven such patients to the verge of desperation. From this condition they have been rescued magically by appropriate surgical measures to re-establish ventilation and drainage and remove pressure.

Transfer this picture of nasal obstruction to the child with typical adenoid obstruction and is it any wonder that mental development is retarded and cerebral function morbidly disturbed, to say nothing of the body growth? "As the nasal blood supply is intimately related to that of the frontal lobe, the seat of mind, it is fair to say that any marked and chronic interference with the circulation of the nose will disturb that of the frontal brain." In other words, adenoid hypertrophy, obstruction and inflammatory swelling affect the brain circulation directly and indirectly lower its vitality through pulmonary insufficiency, anemia and impaired assimilation, excretion and metabolism.

From a modern point of view, hypertrophy of the lymphoid ring of the upper air passages, together with high arched palate, hypertrophy of the thymus with the associated deviation of other structures from the normal are considered among the stigmata of degeneracy and therefore to be referred to the same hereditary or acquired influ-

ence that results in hypoplasia in general. Certain it is that the hypoplastic infant is peculiarly afflicted with hyperplasia of the glands in question. "The hypoplastic child, fundamentally unstable and still further handicapped by enlarged tonsils and adenoids, with their attendant train of evils, is prone to respond nervously in an exaggerated degree to harmful environmental influences and needs careful study and attention to insure the advancement of which he is in a great number of instances capable."

Pistre defines "adenism" (a good term, by the way) as a morbid hyperplasia of the pharyngeal lymph tissue, an outward visible sign of a defensive struggle on the part of the organism against an hereditary or acquired intoxication operating at a very early stage of individual growth. Whether this intoxication is due to biologic changes in the blood induced by micro-organisms or to humoral alterations dependent upon disturbance of the balance of internal secretions of many glands is not settled. The last word has not begun to be spoken concerning the interrelation between the hypophysis, the adenoids, the tonsils, the thyroid, thymus and pineal glands, the sex organs and other structures. Their mysterious effect upon development and their relation to maldevelopment and the various signs of degeneracy are suggestive fields for research. How far are adenoids, according to Pistre, "one of the elements of a hypoplastic symptom-complex that in its completest form appears as the *maladies rachitique,* involving bone, lymphoid structures, and later, the liver and spleen, and so forth?"

The removal of adenoids is not put forward as a panacea for all juvenile delinquency and retarded development. Retarded mentality and backward physical development undoubtedly exist without lymphoid abnormality, and gross adenism does exist in exceptional cases without stunting the brain. Even the laryngologist, perhaps somewhat obsessed with the importance of his own work as contributing to the comfort, comeliness and health of the race, must concede that an efficient adenectomy and the elimination of the tonsils as open doors to serious infections, never yet put brains into an idiot or wits into an imbecile, and never revolutionized the intellect and moral character of a moron.

But every laryngologist has frequently seen such operations very materially benefit the physical condition of these unfortunates by removing a potent cause of irritation and disease at a time of life and under morbid conditions when nervous instability is marked and reflex storms peculiarly common. Surgical relief should be given. These deficient children are entitled to any help which can be offered. Furthermore, hypertrophied and diseased tonsil tissue loses its power of resistance when thus degenerated and therefore becomes an increasingly ready portal for infections. The abolition of the tonsils in such conditions is, therefore, demanded.

But our plea today would emphasize the fact that a multitude of children, with normal brains and normal means for developing them, if denied proper surgical attention, will suffer deterioration of their normal gray matter, and therefore of mental force. And though they may not graduate into criminals or degenerates or public dependents, they will be seriously handicapped all their lives.

In all private and public institutions which exist for the care of defective children of various types, there should be a thorough investigation of each case, and where indicated the adenoids and tonsils should be properly removed by those properly trained for the work. All public school children should in every city be systematically inspected, but the recommendations for surgical interference followed out through the family practitioners, where there are such, or referred to specialists. That this would entail a large appropriation of public funds is true—much larger than is now appropriated by any city or commonwealth. Over two billion dollars is annually spent in the United States for police protection and the apprehension, conviction and incarceration of criminals. A goodly number of this class, as already suggested, is recruited from the adenized delinquent child. The family physician today may be fairly educated out of the attitude of discouraging surgical measures, prescribing internal absorbents (?) and assuring the parents that the condition will be outgrown. But he is so far the key to the situation and still so asleep to his obligations that he does not yet make every family into which he is called a mine of exploration, to the end that he may know the condition of all its members and so compass those hidden cases of adenism in the children of the house before they fall into the hands of the school inspector, who

by the way may not take the trouble to call him in on the case.

By so educating the general practitioner to look for these lesions, and the public to look for them and to court operative relief is the way *par excellence* by which to compass the problem before us—how shall we prevent the evil results of neglected adenism?

Proper medical inspection would not only save the state enormous expenditure of money, even with increased expenditure for inspection, but enormously increase the efficiency of our citizenship and enormously increase the total comfort and health of the community. Universal, uniform laws and methods of inspection should be adopted in all the states to overcome the present haphazard chaotic situation and insure the children a fair start in life. State supervision of medical inspection of schools should be made to enforce uniform laws conserving the mental and physical health of school children and insure economy, health, intelligence and the reduction of criminality.

In this connection it is a matter of satisfaction to know that the State Board of Administration in Illinois, upon the initiative of Governor Dunne, has established the department of Oto-laryngology, of which Dr. J. Z. Bergeron of this city is chief. His plans are already under way to organize and systematize the work of that department upon efficient lines, as applied to our state hospitals and reformatories.

25 East Washington Street.

DISCUSSION.

Dr. J. Z. Bergeron, Chicago: While it is distressing to have to say that to my knowledge not a state in the union has a thoroughly organized ear, nose and throat department, yet it is correspondingly gratifying to be able to say that the State of Illinois has in this matter taken the lead.

Some months ago, at the suggestion of a few friends, His Excellency the Governor, looked into the merits and advisability of developing such a department in the state and with the assistance of Dr. Zeller and the Board of Administration, the department was created of which I was made the head, but the administration was confronted with a serious proposition, that of no funds, as the legislature had adjourned when the department was created. I was then asked if I would develop the department under those circumstances. My reply was that I would providing I was allowed to work it out along scientific lines and absolutely free from politics in every sense of the word. That they assured me and I must say that it has been absolutely free of political influence or not even a financial remuneration, any more than $20.00 a visit to the institution; that means my time, taking my regular assistant with me and also an expert anesthetist when we commence to operate.

There are in the state institutions, including the one in Lincoln for the feeble-minded, between 2,500 and 3,000. I have examined 115 boys at the St. Charles Home for Boys and found 100 operative cases, such as tonsils, adenoids, septum, degenerated turbinated bodies and chronic mastoids; 15 were non-operative, in other words, about normal; 10 were found to have heart lesions and quite a number of cases of rheumatism which I am at present tabulating. I believe that the Board of Administration is finding its way to giving us the instruments that are absolutely needed for the operative work. They have had their troubles because of having had no appropriation for that purpose, but it seems they have found a way out of it. The last communication I received from them was that our instruments would be delivered in the very near future.

I found each time I visited the institution that the hospital cases were mostly of the upper air passages; namely, otitis media, tonsilitis, suppuration of the ethmoidal cells, etc., and quite a number of cases of rheumatism.

I want to thank the organization for the courtesies extended to me and hope to give a more complete report at the meeting next year.

Dr. Bliss: Just one thing in connection with this paper that I want to speak of. The very title of the paper implies a mental defect can be caused by adenoids and tonsils. I don't believe that. I believe that you may have retardation, you may have any amount of interference with the child's ability to meet social conditions, to meet his school and to meet life but not sufficient to cause actual mental defect. He may have had adenoids and been feeble-minded before, but I seriously question it. I don't know that the Doctor would make that statement.

## THE RELATION OF THE EYES TO MENTAL DEFICIENCY.

OSCAR DODD, M. D.
CHICAGO, ILL.

Mental deficiency has been divided into two classes: The congenital and the acquired. Gross defects of the eyes often accompany the other stigmata which may be present in the first class (deficients from birth), but it is with the second division, those in which the arrest of mental development manifests itself during childhood and adolescence, that the eyes are most concerned.

Statistics do not help us much in determining

the effect of ocular defects on mental efficiency. While the proportion of children with defective vision has been shown to be from 19 per cent to 35 per cent in our schools, Ayers[1] in an exhaustive study found the proportion of eye defects as frequent in the bright pupils as in those classed as dull or backward. The explanation for this may be due to the difference in the nervous system; one child being predisposed to reflex disturbances and unable to bear the eye-strain while the nervous system of the other may not be affected.

Ocular defects may be causative factors in mental deficiency either because of poor vision or by the nervous strain and reflexes which are produced. The child with imperfect vision is unable to progress with his class-mates and is likely to be classed as dull and lazy, and, after falling behind in his work, becomes discouraged. Too frequently in the past the cause has not been discovered and the child has been classed as mentally unfit. Helen McMurchy[2] of Toronto reports the following case: A boy, aged 13 years, was still in his first reader. For seven years he had failed to get beyond that point until they saw fit to examine his eyes and found the vision very defective in both. With the correcting glasses he immediately began to improve and make good progress in his school work. It cost the city of Toronto seven years schooling before the cause of his mental deficiency was determined This case is extreme, but every oculist has seen cases similar to the following, quoted from Swift: "Boy, age eleven years. Surroundings good, but so dull in school that he had fallen three years behind. Examination revealed mixed astigmatism. When this was corrected he began to improve physically, and two years later he had overtaken his former classmates.

Mental inefficiency may result from functional derangement occasioned by the continued effort of the brain to do its work under abnormal conditions. Since the brain is first of all a physical mechanism, and as such cannot be exempt from physical limitations, mental efficiency rests primarily upon a vigorous nervous system in a healthy environment. All questions of mental development are more or less dependent upon the process of learning, and of the senses through which the mind receives impressions of external things the sight is one of the most important.

Edgar James Swift[3] says: "During adolescence the demand for nerve force is great. Bodily changes are rapid and, with the best conditions, nerve centers are under heavy strain to supply needed energy. When work is improperly done it uses up a great deal of energy wastefully. Irritated centers send out abnormal impulses which result in deranged functional activity of the organs. The organs strive to do the work as it should be done and in their blind effort to preserve the integrity of their activity they call for more nerve energy; but the centers, because of their derangement, are able to give them only impaired impulses."

The nervous system of the growing child is not capable of sustaining a large amount of continued exertion so the constant strain of muscular exertion needed to overcome an uncorrected hyperopia, astigmatism or muscular insufficiency is followed by serious results. Muscles cannot act unceasingly, as they do under these conditions, without becoming exhausted in time. After a continuation of this unnatural effort the muscles finally lose their power of recuperation and pathologic results occur.

On account of the inability to see clearly in the distance myopia is more easily recognized and more frequently corrected than hyperopia, astigmatism and muscular insufficiency. The child with uncorrected myopia is debarred from much that leads to proper mental and physical development. He cannot enter into the sports and activities of his companions and consequently has a tendency to become despondent and morose. Such eyestrain reacts upon the moral nature and may have a great influence on the formation of the character and disposition.

I know of no more graphic description of the difficulties arising from myopia than Ex-President Roosevelt's account of his own experience. He writes: "Quite unknown to myself, I was, while a boy, under a hopeless disadvantage in studying nature. I was very near-sighted so that the only things I could study were those I ran against or stumbled over. One day they read an advertisement to me on a distant billboard and I then realized that something was the matter. I could not even see the letters. I

1. Psychological Clinic, 1909.
2. Trans. Amer. School Hygiene Assoc., Vol. III.
3. Swift: Mind in the Making, p. 137.

spoke of it to my father and soon after got my first pair of spectacles which literally opened a new world to me. I had no idea how beautiful the world was until I got those spectacles. The recollection of this gives me keen sympathy with those who are trying to remove the physical causes of deficiency in children, who are often unjustly blamed for being obstinate or mentally stupid."

In modern industrial evolution there has been a rapid increase in the use of the eyes for close work, and the eyes have not had time to adjust themselves to the new situation. In place of the short periods of close work interspersed with long intervals of use for distant vision we now have the reverse. Small defects which would not have occasioned any serious trouble with our fore-fathers in their limited use of the eyes will now cause serious difficulty.

An illustration of the serious handicap caused by a small error in the following case: A boy, aged ten years, was brought to me for examination of his eyes, the parents saying they were in despair about his school work as he could not read correctly. While reading he would repeat, mispronounce, and transpose words so that it was impossible for him to pass his grades. They had tried a private tutor but without benefit. I found his vision and muscular balance practically perfect. There was a small amount of manifest hyperopia, seemingly not enough to interfere with his work, but as the parents were anxious to do everything possible for him, I used a mydriatic and found the full amount of error to be + 1.25 D. Sph. both eyes. I gave him glasses and his parents reported that his difficulty in reading had at once disappeared and he was making good progress in his school work.

Reflex neuroses play an important part in mental hygiene and any condition which causes a nervous irritation should be relieved before it becomes permanently fixed and a serious menace to brain growth and development.

The neuroses which usually follow eye-strain are asthenopia, headache, migraine, gastric disturbance and facial chorea or habit spasm.

That headache in children is a serious handicap to mental work need not be mentioned, for, whether it takes the severe form accompanied by nausea and dizziness or is only a dull frontal or occipital pain with the hebetude attendant upon it, work is practically impossible while it lasts. Risley in an analysis of about 1,000 cases of eye trouble found headache present in over 50 per cent. Other investigators have found a larger proportion. Many of these cases have perfect vision but the headache is caused by a hyperopia which is not manifest, or to a small amount of astigmatism. It is well to note in this connection that a small amount of astigmatism is frequently followed by more distress than a large amount, as with the small amount the ciliary muscle is constantly trying to procure clear vision by an irregular action, while with the large amount all attempts to see clearly are given up.

Every oculist is familiar with those cases of nervous dyspepsia lasting for years with no benefit from ordinary treatment, but which upon the correction of a small amount of astigmatism will at once disappear, to return when the use of glasses is discontinued.

Another frequent cause of discomfort which is not manifested by poor vision is muscular imbalance. A form of this is exophoria, an insufficiency of the internal recti muscles, making it difficult to hold the two eyes in line for distance and making close work almost impossible because of the difficulty in overcoming the added task of convergence and fusion. Relief from the strain is frequently obtained only when the effort to hold the objects together is given up, and a divergent squint occurs.

A more common condition is a tendency of the eyes to converge (esophoria), when the fusion of the images for the two eyes is maintained with continued effort either for distance or near. This trouble often accompanies latent hyperopia and the person will go through life suffering from headache, dizziness, and sometimes nausea until the changes of age make the hyperopia manifest, and with its correction the esophoria and distress accompanying it may be relieved.

Another class consists of cases in which one eye has a tendency to turn above the other (hyperphoria). Where there is a large amount the greatest effort will not bring the objects together and a diplopia will result or the head is tilted to bring the objects in line. Many of these cases seek relief by having their refractive error corrected by glasses but without benefit until the hyperphoria is corrected. Besides the pain and discomfort of this condition there is frequently

the added annoyance of an apparent torticollis.

These conditions—exophoria, esophoria and hyperphoria—are often overlooked in the ordinary examination of the eyes of school children.

Diseased conditions of the eyes are also responsible for a certain percentage of mental failure, especially when occurring in children of school age, making study impossible. One of the most common is phlyctenular ophthalmia with ulcerations of the cornea, leaving a scarred condition which renders the use of the eyes difficult all the remainder of life. Next in frequency is interstitial keratitis which usually requires treatment for a long period of time and leaves an impairment of vision. Another disease prevalent in certain localities is trachoma. Among our native population it had been largely eliminated until the influx of foreigners from Eastern and Southeastern Europe has filled our large cities with such an epidemic as to endanger all the pupils in the schools. Any person who has seen children afflicted with it will never forget the pitiable picture of the inflamed eyes, scarred lids and corneae.

In conclusion I would say that defects of the eyes are a cause of mental deficiency by preventing the child from receiving proper mental training. This interference may be due to imperfect vision but is just as frequently present when the vision is normal, but is maintained by the expenditure of a large amount of nerve force. The latter manifests itself either in the inability to study or concentrate the attention or by producing one of the reflex neuroses.

---

## THE FEEBLE-MINDED: THEIR ENVIRONMENT AND SOCIAL RELATION.

H. C. KEHOE, M. D.
Superintendent Kentucky Institution for Feeble-Minded Children.
FRANKFORT, KY.

Statistics show that 50 per cent of children attending school are retardates, and evidently 25 per cent of these are really feeble-minded. How many feeble-minded there are who never reach the school room will never be known, but they certainly add their quota to the sum total of social derelicts who tend to leave their blight and contaminate the stream of human endeavor toward a higher civilization.

We are making very little progress toward relieving this condition. Our eelymosinary institutions, kept up by state aid, are but the dumping ground for children of genteel poverty and the substrata of the nether world of hopeless degenerates.

My experience as superintendent of a great state institution has taught me to only look in the faces of these unfortunates to determine whether they are the offspring of the alcoholics, syphilitics, cycotics or feeble-minded.

From no matter which of these parents the child comes into the world his or her tendencies without restraint tend toward a retrograde metamorphosis. No greater calamity could happen than to let the children of such parents go haphazard through life without custodial care and yet if they were all provided for it would impoverish the American nation.

Through eugenics we are beginning to see the light, and if taken hold of at once by the medical profession and all of those interested in stemming the tide of moral degeneracy yet four hundred years will be consumed before statistics will show much progress. This is lamentable but true.

We are now so busy contaminating the stream of human life that we will soon exist in a world *en masse* with feeble-minded, lunatic, cranks, neurasthenics, idiots, alcoholics, syphilitics, nerve-ends, and depraved and hopeless degenerates. To see an individual of natural poise, normal mind and healthy body will be the exception and not the rule. Yet we boast of our great educational institutions and take cognizance of a world dotted with churches whose very steeples pierce the heavens and we hear men prate about the world growing better. Ish ka bibble!

As Americans we boast of our patriotism and the wealth of a sun-kissed nation, while our markets groan beneath the burden of products sufficient to supply the nations of the world—yet as specimens of the *genus homo* we are becoming drivelling idiots and a nation of nincompoops.

If half as much attention was given to the procreation of the human family as is now given to the raising of stock, we would soon electrify the world. As it is the wires are crossed in the human dynamo and we are daily being shocked by short-circuits in the human laboratory.

No more delicate piece of mechanism ever existed than the human brain. Its ability to ap-

propriate materials from the human reservoir makes the mind the most complex unit in all the world, comparable only to the super-human and intangible, ergo God.

Society in reality is carrying a purposeless equation, the state a hopeless burden, and posterity an ever present menace so long as segregation and sterilization is not permitted as a means of mitigating the evil consequence of the feeble-minded.

Science is doing wonders for the mentally diseased as well as the psychoepileptic, and the psychoneurasthenic, but the deficiency of the feeble-minded is irreparable, and but little aided by the Binet-Simon system or any other known method.

When the feeble-minded are allowed to follow unhindered the trend of their minds, moral training becomes a plaything, and turpitude reigns sumpreme; the passions are allowed to run riot; the body politic is made the scape-goat in every community of an army of shiftless, senseless, soulless barnicles of human misfits destined in the end to become the submerged majority. Should we not take a new sounding of human life and plant buoys along life's highway? As it is we are only marking time, while the procession of derelicts are sowing seeds of degradation and shame that are filling our prisons with the abnormal and our state institutions with the insane and hopelessly defective.

It is a known fact that cancerous children are the offspring of tubercular parents and vice versa; that slobbering children, i. e., those with active salivary glands and defective minds are traceable to parents addicted to alcohol; that the defective with partial paralysis point unerringly to syphilitic progenitors; that the feeble-minded with the stooped shoulders and inherited dyscrasia are the children of like parents; while the blue-eyed, delicate, pale children with glandular enlargements and lymphatic conditions are from cycotic parents. And no matter what group they all tend toward an early demise, and 75 per cent die of tuberculosis in some form. It is appalling and the end is not yet.

Epileptics should have a special colony and not be associated with those of feeble mind, as the latter are great imitators and become affected by contagion or psychoepilepsy, while the former need special diet and entirely different treatment.

All feeble-minded are creatures of habit, and repetition fixes the habit, and punishment will not correct the conditions once established in their minds. They have no pride of character and no sense of shame. To do evil is paramount by inheritance, increased by environment. They follow the path of least resistance, and are powerless to prevent the things upon which their mind is bent. It seems characteristic for the mind to grow weaker and passions stronger, and thus they become a prey to all the unmentionable evils of lust that can be enumerated. This is an awful indictment, but it is the plain and unvarnished truth. As Shakespeare says, "I could a tale unfold," if permitted, that would blanch the cheek and paralyze the unsophisticated.

This paper might be regarded as pessimistic by many of my hearers, but understand I am a Democrat, and therefore optimistic most of the time.

There is another side to this subject and those who are "talking to the galleries" are often in the foot-lights, telling fairy-stories of wonderful accomplishments. The truth is a few sparodic cases are helped and a little progress made from individual effort, but all too costly for verification.

To educate the feeble-minded is a dreary waste of time and a woeful waste of money, as they will forget as much in recess as they are taught during class hours. They learn to read and write a little and then forget it all unless kept constantly repeating. Those who have mechanism can do better in manual training or basket making. Sustained effort is impossible and they fall 50 percent below normal in all work.

They are all gormandizers and can eat a yard of microbes a minute and live in an atmosphere surcharged with foul odors and carbon-dioxide. They are not susceptible to contagion and can swallow most poisons with impunity. They are forced into a bath and unalterably opposed to cleanliness, and nine-tenths of them are natural liars and born thieves. They are simply pawns in human form and subject always to a higher power of intellect.

'Tis said a fool and a cypher are never in danger, and these unfortunate creatures are certainly of the tribe of Ishmael and in an immaterial way will be cared for as was the Scion of Hager and Abraham of old, and this part we can

well leave to Him "who doeth all things well." But just so long as they infest the earth and are wont to multiply and replenish they should, in a material sense, be subject to custodial care, segregation and sterilization lest we be lost as a nation both mentally, physically, socially and financially.

---

## A SUMMARY OF NERVOUS AND MENTAL FINDINGS IN FEEBLE-MINDED CHILDREN.

J. J. MENDELSOHN, M. D.
*Lincoln State School and Colony.*
LINCOLN, ILLINOIS.

A very noticeable feature of the feeble-minded as a class is the frequent indications of cerebral lesions and the diversity in their mode of manifestation. Practically all types exhibit along with their mental abnormalities varying degrees of impairment of sensory and motor functions.

Investigation of the nervous and mental characteristics of upwards of 1,000 cases has furnished interesting data, the more important of which will be briefly summarized.

*Sensory Findings.* Impairment of the special senses is of common occurrence. Of 200 cases where the intelligence of the children admitted allowed of examination, deficiency in the acuity of vision was demonstrated in 38 per cent, myopia and astigmatism being the most frequent abnormalities observed. Inequality in the size of the pupils was present in 5 per cent of cases, strabismus in 11 per cent, nystagmus in 5 per cent, subptosis and ptosis in 4 per cent. In 3 per cent of cases the reaction to light was sluggish. Total blindness is relatively rare, there being but 12 cases out of 1,600, 8 cases of which are due to ophthalmia neonatorum.

Auditory defect in varying degrees was present in 18 per cent of the above mentioned group. Six per cent of this number had a history of either recent or remote otitis media. There were 19 cases of deaf-mutism in 1,600 children.

Smell and taste, while somewhat blunted, were not found to show any marked deviation from the normal in the higher grades of mental enfeeblement. The lower grades in many instances display extreme defect of these senses. Satisfactory tests for taste and smell are exceedingly difficult to obtain.

The greater number of cases examined show a slight diminution in the cutaneous susceptibility to pain and tactile stimuli. Difficulty in accurate localization is a prominent finding. About 8 per cent of cases exhibit hypersensibility, especially to pain. In idiots and epileptics cutaneous analgesia is occasionally found. While many cases find it hard to recognize the finer grades of temperature, insensibility to extreme grades of heat and cold were seldom encountered except in idiots. Where stereognosis could be judged it was found to be invariably good.

Abnormalities or organic sensations are often met with. Absolute idiots will give no evidence of the presence of thirst or hunger. More prominent is the tendency to gluttony. Painful sensation associated with visceral disease is often not apparent. Sexual instincts are frequently abnormal, such abnormality being much more common in males.

*Motor Findings.* Evidence of motor defect is more prominent than sensory. Paralysis, partial or complete, is found distributed through all grades of mental defectives, being, as a rule, more frequent and severe in those of lower mentality. In our cases indications of infantile cerebral paralysis is found in 15 per cent of the inmate population, constituted as follows:

| | Per cent. |
|---|---|
| Diplegia | 68 |
| Hemiplegia | 25 |
| Paraplegia and Monoplegia | 7 |

Seven per cent of this group of paralytics have chronic hydrocephalus. In 6 per cent paralysis is residual in nature, function having been almost entirely restored. The paresis is, as a rule, spastic in character and is frequently accompanied by morbid involuntary movements, the most prominent of which are epileptic convulsions which occur in 42 per cent of paralytics. Less prominent are athetosis, choreiform movements and various forms of tremor which are met with in about 33 per cent of cases. Muscular incoordination is common in the majority of feeble-minded, especially marked in epileptics and paralytics.

The morbid condition of the central nervous system often manifests itself in over-action or weakness of the muscles without any definite paralysis. Muscular over-action is evident in about 14 per cent of the children. It manifests

itself in various forms of excessive movement, apparently voluntary in nature, also in the form of tics and automatic movements, such as body-swaying, nodding, tapping, rhythmical motion of the fingers, hands and arms, continuous humming or droning. There is hypertonus of the muscles with exaggeration of the deep reflexes. In contrast to this is found, with much less frequency and mostly in the more severe grades of mental defect, cases of deficient motor excitability. The movements are sluggish. General body balance is relaxed. There is hypo-tonus of the muscles with retarded reflexes.

Hyperextensibility of the joints, especially the metacarpophalangeal, is often met with, especially in cases of organic defect.

Epilepsy is a frequent complication of feeble-mindedness, this condition being found in 16 per cent of 1,600 cases. Of this number about 36 per cent show signs of organic disease. The grand mal type predominates to the extent of 95 per cent, the remaining 5 per cent being comprised by the petit mal and Jacksonian forms. Observation has led me to believe that every mental defective with an organic brain lesion is a potential epileptic.

Chorea is met with in both the acute and chronic forms in about 2 per cent of our cases. There are four cases which are fairly good examples of hypo-pituitarism, also a few cases representing the types of muscular dystrophies.

Abnormalities of speech are found to exist in about 65 per cent of feeble-minded children. The forms of abnormality are so diverse as not to permit of proper classification in a paper of this kind. Defects depending on the impairment of the motor speech apparatus, especially cortical anomalies, are most frequent, constituting about 62 per cent of this total. Such defect includes in their order of frequency stammering, slurring or stumbling over syllables, stuttering, aphonia, motor aphasia, and other unclassified forms of impairment. Intellectual speech defect is next in order of frequency and is met with in 35 per cent, being almost entirely limited to idiots and the lowest grades of imbeciles. This includes cases where speech is absent or rudimentary, being limited to noise-making, lalling, monosyllables, echolalia, and other varieties of psychic speech defect. Defect depending on imperfection of perception of sound or absolute deafness is found in about 3 per cent.

*Mental Findings.* The mental states in the feeble-minded are divisible into two chief groups.

1. Cases where the defect is mainly intellectual.

2. Cases where the moral defect is more prominent.

The second group is more frequently encountered as the intelligence level approaches the normal. The intellectual level of 295 admissions as graded by the Binet-Simon tests resulted in the following findings.

Fifty were found to be idiots, namely, to have exhibited a mental age of less than 2 years. The physical ages of this group varied from 3 to 31 years, the average age being 9½ years. One hundred twenty-five comprised the imbecile group with an intelligence age varying from 2 to 8 years. The physical ages of this group ranged from 6 to 43 years, the average age being 12-3/5 years. Eighty-four were found to be of the moron type, their intelligence age varying from 8 to 13 years. The physical ages in this group ranged from 11 to 48 years, the average age being 16½ years. Considering the fact that an individual with a mental age of 8 to 13 years can frequently get along in the community and are the last to gravitate to an institution for the feeble-minded, the size of the moron group is significant of the numbers of this type at large.

Twenty-four of this series were classified as backward, their mental retardation not exceeding 3 years, while 11 graded up to the normal requirement of the tests. Of these two groups of cases a few members were epileptic, some displayed reactions pointing towards a progressive increase in their mental retardation while the majority showed varying degrees of incorrigibility and other evidences of feeble control of their moral reactions.

Defect in the power of attention is exceedingly common in the feeble-minded. This defect varies in intensity, depending as a rule on the severity of the mental deficiency. The profound idiot may be so markedly lacking in attention as to render any education a practical impossibility. The imbecile usually displays voluntary attention but the character of the same is unstable, it being easily gained but as easily distracted. The same tendency is displayed in the higher

grades, but in a milder form. The majority will show a childish interest in things spectacular but the impression fades rapidly.

As a result of the defect of attention all qualities depending on attention are correspondingly impaired. There is a lack of mental concentration. Comprehension poor. The stock of ideas is reduced and there is a lack in the power of association. Acquired memory is also of necessity impaired.

A constant feature in the feeble-minded is a lack of judgment and reasoning power. While the higher grades will at times show a capability of reaching simple conclusions, their judgment is, as a rule, too limited to permit of a proper appreciation of right or wrong, except as they associate certain acts with punishment. Coincident with the lack of common sense there is a deficiency of will-power with increased suggestibility.

The majority of cases are of indifferent temperament, showing a lack of constructive imagination with deficiency of the emotions. Sympathy and affection are for the most lacking—they are readily amused by the ridiculous but not so easily touched by the pathetic. On admission to the institution the majority show little evidence of homesickness, readily adjusting themselves to institution environment and often doing quite well at routine work under supervision.

Vicious environment is capable of developing immoral tendencies in most feeble-minded children. There are a great percentage of cases, however, that show an innate tendency to degenerate traits of character. The intellectual defect is not pronounced but the moral defect is prominent. The latter manifests itself in early incorrigible tendencies, such as dishonesty, truancy, "wanderlust," cruelty and destructiveness. Sex perversion is of common occurrence. In many instances there appears to be a total inability of comprehending social obligations. It is from this group of cases that the ranks of paupers, vagrants, thieves, prostitutes, sex perverts and the like are often recruited.

Insanity as a complication of mental deficiency is deserving of mention. C. B. Caldwell reports that 11 per cent of the population at Lincoln "gave undoubted insane reactions in one form or another." Thirty-five per cent of this total he includes under the head of "Terminal Dementia," a condition commonly found in the feeble-minded, especially the older patients. Dementia praecox is met with to a similar extent and is the chief active form of insanity encountered, the hebephrenic form predominating. Paranoic states comprise about 5 per cent of this group and involutional states including melancholia, about 4 per cent. The remainder is constituted almost entirely by the demented and maniacal forms of epileptic insanity; rarely a case of juvenile paresis is met with.

---

*Friday, July 17, 9 A. M., Hotel La Salle.*

## THE PHYSICAL CAUSE OF MENTAL DISEASE.

CARL W. SAWYER, B. S., M. D.
WHITE OAKS FARM, MARION, OHIO.

There is at the present time considerable discussion as to whether mental diseases are caused by physical or psychical measures and as a corollary to this, whether mental diseases should be treated by physical or psychical methods.

My own belief is, that in all instances mental diseases are due to physical causes and should be met by physical measures. It is certainly true that in a certain few mental disturbances a physical base is conceeded by all and as a result we no longer depend upon the mental aspects of the case.

In paresis, for instance, we no longer pay any attention to whether the patient imagines he or she is king, queen, or plain John Smith; whether he or she is worth millions or a pauper. We look rather for physical things, positive Wassermann reactions, change in the spinal fluid, eye symptoms, etc.

Dementia praecox likewise is rapidly falling into the physical disorders. Dr. Cotton last year at this same meeting showed by his stereopticon, that in the final stages at least there was a very appreciable physical change in the brain of the patient. And now the Abderhalden reaction is proving conclusively that there is a physical change in the sex organs and that the functions of the brain are disturbed because the sexual apparatus of the individual is physically disturbed.

Other disorders and other less well defined cases are just as physical as the ones mentioned above, but unfortunately the psychical side at-

tracts so much attention that we lose sight of the physical.

It has been our custom in working with this class of cases to always look for physical derangements and to endeavor by physical means to change the mental state. We have oftentimes been startled by the results. And after going over many histories I feel justified in making the statement earlier given that mental disorders are usually, *if not always,* caused by physical disorders.

"As the proof of the pudding is in the eating thereof," I wish to cite a few cases. In explanation I wish to say that these cases were chosen from over 2,700 case histories of patients whom I have seen personally and have followed for some time. They are not sporadic cases but rather typical cases representing large classes and in all instances are only one of many presenting the same salient facts. They are all cases that have made complete recoveries.

They were chosen for this reason because since we had no autopsy findings to prove our diagnosis we were compelled to fall back upon therapeutic ones. Since the therapeutic measures were instituted to combat definite physical conditions and since these conditions disappeared under the measures instituted, it seems right to suppose that the physical findings were correctly diagnosed. And also since the mental conditions disappeared with the disappearance of the physical conditions, we feel that we have the right to assume that they were likewise due to the physical conditions.

The first case is that of a woman 38 years old. She had been sick several weeks when we first saw her. Her trouble was preceded by an attack of lagrippe which took a long recovery period. One day following her recovery from lagrippe and when she was not any too strong, a man grabbed her and kissed her. Immediately following this she became depressed, worried, said she had done wrong, etc. She laid great stress on having done wrong and talked constantly along a suspicious sexual line.

Physical examination showed her weight to be 81 pounds, when normally it should have been over a hundred. Her face was flushed, she had a slight fever, there was a marked amenorrhea with a small fibroid on the uterus; râles in the upper right lung, but no cough or sputum. There was also a very postive tuberculin reaction. Desipte the sexual mental attitude, the case was pronounced tubercular and the brain findings were considered secondary to the other trouble. Under treatment she slowly gained in weight, her fever subsided, she was able to take more exercise and gradually as her general physical health improved her mental attitude changed until she was quite her normal self.

At first glance to all intents and purposes this woman was a sexual melancholiac, but when all of the facts were worked out, and her physical condition taken into consideration, she proved to be simply a case of pulmonary tuberculosis *with mental complications.*

The second case was one which seemed to belong to those cases of excited mania sometimes called manic-depressive insanity, acute mania, and at other times just simply plain mania, there being no definite way that they can be classified.

She was 46 years old and 4 months before her attack began she commenced to have pain in her back. Next she became worried and feared that she was going insane and at last began to fight those about her. When first seen she was very wild. It was necessary to place restraint on her owing to the fact that she was tearing her teeth out of her mouth, already having pulled two loose, was pulling her hair out of her head and disfiguring herself in other ways. Under no circumstances would she keep her clothes on; she went through various sexual motions and was entirely disorganized mentally.

Physically she presented several characteristic features. She was constipated, the colon was filled with fecal material. The specific gravity of her urine was 1030. There was a slight trace of albumin present and large amounts of indican and calcium oxalate crystals. Her red blood corpuscle count was 6,208,000; the white count was 14,600; the hemaglobin was 70 per cent and the blood pressure 125.

Our decision was that she was a case of hypercythemia complicated with poor elimination. Active diuresis and catharisis was established. Hot baths and massages were given to reduce the blood stream. No attention was paid to the mental state; rest was insisted upon even under physical restraint; outdoor living arranged for as far as possible; careful nursing instituted and in less than 3 weeks the patient was in a normal condition again both mentally and physically. She had no recurrence in over a year.

This case is representative of probably the largest class of cases which we see; persons whose elimination is poor and whose blood making organs go on manufacturing blood corpuscles until the case is actually stuffed so full that the brain cannot work properly.

We have already shown in another article (Significance of a High Red Blood Corpuscle Count), that 11 per cent of all of the cases presenting for treatment have an increased red blood corpuscle count and that most of them have a slight trace

of albumin and calcium oxalate crystals in the urine and we have also shown that the recovery of the case is exactly in proportion to the decrease in the red blood corpuscles and the diminution and disappearance of the calcium oxalate and the albumin from the urine.

The third case is much like the second in mental action. She was 32 years old and was perfectly well until an abortion was produced, when she lost all signs of mental equilibrium.

When first seen she talked constantly of babies, imagined that she was having the care of them, that everyone she was with was having them, that she was trying to steal them and that people were trying to take them away from her. At times she thought she was never going to haev one and cried constantly for her husband to see if it were true. She seemed in every way to be entirely disturbed along this special line. She was very much emaciated, her legs and arms were retracted so that she could only move them slightly, they were painful in all parts, and she could scarcely stand the pressure of the bed clothes. Her red blood corpuscle count was 3,840,000, the white count 8,200; the hemaglobin 80 per cent and the blood pressure 130. Her urine was scanty, albumin was present and there were many pus cells. As there was frequent urination with marked stranguary she was catherized and nearly a pint of pure pus was drained from the bladder. Cultures made from this showed both streptococci and staphylococci, the latter being predominant.

Supportive measures were commenced, careful nursing instituted, the bladder was catheterized four times a day, but never washed, baths and massages were given daily and staphylococcic vaccine injections given as her condition indicated. Slowly but surely the urine began to clear and after all traces of the pus had disappeared, her mentality changed, she cleared and has remained so now for nearly 2 years. There is no doubt that her trouble was due entirely to the staphylococcic infection, just as hundreds of others are.

Case four illustrates how easily one may be fooled by what seem to be real conditions. This patient was 24 years old. Had always been healthy, was married and at the proper time had a baby. On the third day after labor some kind friend told her that a baby had been found on a door step near by and they wondered if it belonged to her. Within a few hours after having been told this, the patient was entirely wild. She imagined that her child had been illegitimately born, that she had done wrong, that people were accusing her of being a bad woman, and so on.

When we saw her she talked of sexual matters constantly, masturbated, tried to have intercourse with all the men who came near her, would not wear clothing of any kind, made most dreadful exhibitions of herself and was as vile as anyone could possibly be. I thought that certainly she was a sexual case and proceeded along these lines. Some past acts of hers had been questionable, and led to the fact that she might have some reason for worrying.

We made every effort to work her out by physical means but at the end of 5 months had made no headway whatever, only having gained a little on her physicial condition, and made her a trifle more cleanly in her habits. At that time we were not doing Wassermann tests so I could not state positively regarding a syphilitic history. But the more I saw of her the more I was convinced that that was the cause of her trouble. At last, in desperation, I began mercury hypodermically. In less than 6 weeks she cleared and has remained clear ever since, nearly 3 years. Certainly she was a physical case caused by physical conditions.

The last case was what I considered a pure dementia praecox of the hebephrenic type. I might add that several other physicians who had seen her and who understood disorders of this kind, had made the same diagnosis. All of us were agreed that more than likely she was incurable.

She accused her mother of mistreating her, vacillated from religion to vileness and in every way showed all the features of a dementia praecox. At one time she became catatonic and remained in this condition for several days and nights. The usual line of treatments were tried without avail. At that time I did not know of Cotton's work, nor had I learned of the use of nuclein in these cases.

After several blood counts had been made and the case had been under observation some time, it was noticed by my assistants that she ran a leucocytosis which coincided with her better periods. It suddenly dawned upon us that Nature was trying to create a reaction to overcome the trouble. Knowing that nuclein caused a physiological leucocytosis it was given hypodermically. The patient made a fair reaction and the whites began to increase. On December 21 they stood at 6,600; on January 13 at 8,600; on February 3, 10,800; on February 24, 13,400. Her mental condition was then entirely changed. She was gaining in weight, her fever had subsided, she was going through all her functions normally. On March 17 the whites had drifted back to 8,000 and as her mental condition was absolutely clear she was allowed to go home. She has remained well ever since. Whatever her trouble was it must have been of a physical nature because it was conquered by physical measures entirely.

As stated earlier these cases are only typical of large classes. They are the kind one meets constantly in the day's work. They are the kind that go to make up the so-called "insane."

They were all brought for treatment because of psychical disturbances and they all recovered through physical means directed to physical causes. Those of us who had to treat them and who had to work out their problems and who

met their troubles face to face are confident that the psychical symptoms were merely side shows thrown in along with the big physical drama.

And since cases like these are constantly occurring and since we are constantly seeing other cases bud and bloom along the same lines, we feel that the physical side of all cases should be carefully gone into. It explains causes and in many instances, when the observer is keen enough, indicates treatment and brings results.

Of course, there are cases that cannot be explained along physical lines, but after working with the Wassermann test, after studying the blood and urine and physical findings of the patient, after following the literature regarding the results of the newer methods perfected by Abderhalden and other workers, and above all else after following the recent investigations of shock and anoci-association (Crile), showing the results of fear on the brain cells, I am convinced that wherever physical conditions are not shown to be the cause of psychical states, it is due to the weakness of the investigator and the immatureness of his methods rather than to the lacking of the physical cause.

---

*Friday, July 17, 2 p. m., Hotel La Salle.*

## MENTAL STATES IN FAMOUS CHESS PLAYERS.

LOUIS MILLER,
TOLEDO, OHIO.

Although the literature of chess is said to be greater than that of any other game or sport and extends into the ancient history of India, Persia and Arabia, and from medieval Europe until the present there has been little contributed on the psychological side from a modern standpoint. This is the more singular since the play of chess is so purely an intellectual function. Only one author on the subject could be found in a search of the Congressional and Surgeon General's Libraries, namely: Psychology of Chess, an article by Dr. Alfred Cleveland which appeared in the *Journal of Psychology* in 1907.

Binet published in 1894 a work on the Psychology of Calculators in which Goetz (a chess player) contributed a brief analysis of processes involved in playing chess. Among the non-medical writers is the wise discussion of Benjamin Franklin (Morals of Chess) and the short keen analysis of Edgar Allen Poe. The former finds that foresight, caution and circumspection are the morals to be derived from such exercise, while Poe gives attention and deduction as chief requisites. The laity, too, have also their own ideas concerning the game, believing that its chief characteristics is merely dry, hard work, and that excessive application may wreck the mind. Medical men likewise are not entirely free of this superstition, as I know from personal experience and from the published statement of Dr. Tarrasch, medical man and master chess player who did not want to feel the responsibility of allowing Pillsbury to undergo the strain of giving one of his blindfold exhibitions when in Nurumburg, Tarrasch's home. But he hastily adds that mental application alone can not produce serious consequence.

When Pillsbury died insane in 1905 newspapers generally blamed the strain of his simultaneous and blindfold performances for causing the mental breaddown. Morphy, Schiffers and Stienitz are other instances of insanity occurring among noted exponents of the game. These examples were sufficient to create a desire to inquire into the relationship existing between the facts cited.

These investigations, together with the writer's acquaintance and experience with professional as well as amateur players may also afford additional evidence concerning the question of mental overwork as a cause of neurasthenic states.

It may clarify to discuss a little the quality of processes involved in chess play.

The mental qualities most used and generally admitted are perception, memory, analysis and a constructive imagination. To these must be added the so-called "positon sense."

Cleveland defines the reasoning process as applied to chess in psychological terms as "A sequence of mental states due to shiftings of the focal point of attention, the associations working strictly within the limits imposed by the task or purpose." Memory is well developed in all first-class chess players. Dr. Tarrasch can remember the moves of most of his important games, as well as other matters of interest to him. Blackburne, the English champion, in 1899 reproduced from memory a game played by him in 1862. Morphy could make the moves of all the games played by

himself after he had chess maturity. He also knew four languages and could recite from memory nearly the whole of the Louisiana Law Code. He was a graduate in law before reaching twenty. Pillsbury, the late American champion was a brilliant player whose memory feats were remarkable. He easily could play twenty and more games simultaneously without sight of the boards. He often sandwiched in these exhibitions, several games of checkers, at the same time taking a hand at whist. If starting in the afternoon, such contests might be adjourned for dinner, after which they would proceed as if no interruption had occurred. In Philadelphia before starting a blindfold contest against twenty boards he was given thirty words to remember. At the end of the evening's entertainment he repeated accurately the words and then said them backwards.

Most master players can manage from four to eight boards blindfolded. Quickness of perception is called for especially in over-the-board simultaneous play. Players like Capa-Blanca will play and finish about thirty games in approximately three or four hours, *i. e.*, making close to a thousand moves at the rate of about five to eight moves per minute.

Morphy blindfolded beat the strongest teams of eight players of England and France successively, and with only one drawn game scored against him.

Attention is so necessary to good play that Poe complains that if it flag a little the result may be so injurious that the player affected may lose to one of lesser acumen. That is true, and as it varies in the individual from time to time, so does the fortunes of his contests. Attention is apt to be affected by fatigue, either from playing, or from other causes, or apparent inattention and consequent blunder may spring from a very excess of attention to one field of the board, or to one plan of procedure, to the exclusion of others. That is, a sort of fixed idea arises. The attention must be directed to following the goal idea. The latter is determined by the judgment of position and the powers of forming combinations. As Cleveland says, the logical type increases in proportion to knowledge and skill, and arrives at the type of the syllogism.

The position sense is the result of knowledge derived from experience and study. It is the organization of the relations of different units into whole complexes. Generalization results, and more or less automatism takes place. This releases the attention from many details and makes playing far less laborious: "favoring short circuit processes" (Cleveland).

The position sense may be likened to the strategics of military science, while the mere combining power resembles tactics.

Blindfolded playing, without sight of figures or board is not so easy of analysis, probably because this feat is not accomplished exactly in the same manner by all. Some visualize almost entirely, others are said to have verbal symbols or auditors, while with Pillsbury, it was accomplished by calculation, a mere record. One man grasps this easier by being reminded that a game of chess is not a mere series of kaleidoscopic moves, but every successive positon bears relationship to those preceding, and also to the hypothecated future situations. There is always a plan or theme, or a number of these (leit motives) serving as a constant hold for the memory, and the various figures are in logical and harmonious relationship to these and to each other, and in consequence it is not so difficult for one who grasps the central idea of the play, to reconstruct what figures should rightly stand in association with it. That is why it is easier to reproduce from memory a game of forty moves, than twenty chess problems of two moves each. For in the latter there are twenty separate and distinct themes. I am inclined to believe that most blindfolded players are calculators, and that this process is assisted considerably by a partial visualization. I doubt if any visuals see distinctly the entire board at one time. One does not in over-the-board practice. The vision is fixed on only several squares two to four at one time, while the other squares are in the peripheral field according to their distances. Personally I see a board slightly foreshortened, the far side tilted upward apparently about six inches, and about four squares with the figures can be seen distinctly at a given time. To differentiate the black from the white pieces requires a slight but distinct additional effort. But one recognizes, or rather knows the particular squares, and further orients himself by passing rapidly from one set of fields to the others. This, in my experience, assists and clarifies mere calculation.

Engrammes thus repeatedly stamped and re-

called, may be readily and quickly revived at will. But a complete automatism is never reached, for no two games or problems are ever just alike, and so new deductions and calculations must ever be made. Hence it is that a chess player with great theoretical knowledge may and will sooner or later slip backward in practical performance. Ability varies also with the individual's varying conditions, mental and physical. Thus, the character of chess play is often a subtle index of the individual's condition; of a variant condition perhaps not noticeable in the performance of routine duties, where knowledge previously acquired serves well enough. In this connection occurs a chess malady, seen normally in novices, frequently in amateurs, and occasionally in masters, called chess blindness, or what Dr. Tarrasch has humorously termed "Amaurosis Scacistica." It is a condition in which the mind unexpectedly blunders, and fails to take cognizance of the most obvious position. Its etiology is too various to enter into here. The duration may extend over but a single move.

The emotions enter not greatly into the game, except of the gentler sort. But temperament finds expression in style, as the open game, the close game, the attacking style, and the more prudent defending type. The pleasure of the game has been said to depend upon the instinct for combat. Poe ascribes it to a love of exercising talents for analyses, solving cryptograms, etc.

The chess player is the mental prototype of the athlete, and bears about the same relation to others in mental pursuits that the athlete does to the physical status and health of others. Both are specially trained and possess ability along certain lines, but it does not necessarily follow that there is a superiority in general health or greater success in affairs. In general I can not speak of any characteristics peculiar to master players.

As regards mental diseases the biographies and records show but four in the past quarter century having developed insanity. These are Schiffers, Pillsbury, Minkwitz and Steinitz. Minkwitz, a German, is said by Dr. Tarrasch to have had a bad inheritance, as his father was very eccentric, and Minkwitz would have become a lunatic in any calling. The diagnosis was primary hallucinatory insanity. Of Schiffers, a Russian, Dr. Tarrasch describes him as a versatile, well educated man full of humor, amiable and entertaining—in short "ein Kerl wie Samm't und Seide, nur schade, dass er suff!" This he did with great consequence and developed an alcoholic psychosis. Steinitz, champion of the world for twenty years, died in 1899 of paretic dementia, but was over sixty years of age. Pillsbury died in 1906 of undoubted paretic dementia. He was doubtless well advanced in the disease during the Cambridge Springs Tournament in 1904. At that time he suffered from insomnia and restlessness. For the first time in his career he was not among the winners. But he had a spark of the old fire and ability when at the same tournament he beat Lasker, world's champion, then resident in America, and Pillsbury's chief rival. He had saved for a long time an original variation of the Queen's Gambit for a contest against Lasker. Tschigorin, another Russian chessmaster, died at fifty-eight, after a long illness of diabetes. But his chess powers were diminished, too, long before, from the free consumption of $C_2$ $H_5$ OH. This alcoholism in the two Russians can not be ascribed to a chess temperament, but to a national tendency.

The last case I have to cite is that of Paul Morphy, the most noted figure, and greatest chess player in history. He was born of well-to-do and cultured parents, in New Orleans, in the year 1837. His uncle and father taught him chess at a very early age. Lowenthal, the Hungarian master, visited New Orleans in 1850, and played three games with Morphy who was then not thirteen years of age. Morphy won two games and drew the other. He was never beaten, and after conquering the world of chess by visiting, and playing against all comers, both in America and Europe, issued a final challenge to give odds of pawn and move. No one raised the gauntlet and Morphy never played again, excepting a few games with personal friends.

His tournament and match games covered but a period of two years. He first won the New York tournament in 1857. He then went to France and England where he defeated in match play the strongest, such as Anderssen, the German champion, Lowenthal, and others. He had then just reached his majority. He is described as slight in figure, dark, but comely, and of possessing polished, pleasing and modest manners. He scorned professionalism in chess, considered himelf but an amateur, and when there happened

to be a purse or prizes offered, always gave them away.

On returning home from Europe by way of New York he was received with honors by admirers, and presented by the president of the chess club, a handsome set of gold and silver chessmen. He created a scene, however, by objecting to the implication in the presentation speech, of the profession of chess. It was harmless and meant nothing in particular, but Morphy's sensitiveness was too great and as a result, the speaker retired in confusion. The chess pieces are at present in the Manhattan Chess Club, New York. This incident, I think, likely, the very first manifestation of the malady which later clouded his life. He accepted a contract for writing a series of articles for the *Herald,* at a salary of $3,000 a year. He returned to New Orleans and attempted to practice law, his father's calling, but his chess reputation was greater than his legal, and the realization of the fact soon embittered him, and he could never be induced to play again in public. Then to make the bitter, gall, a young lady with whom he became enamored permitted the information to leak out that she could never marry a mere chess player.

He became more seclusive, and gradually developed delusions of persecution. His father being deceased, a brother-in-law was administrator of the estate and it was against him that Morphy suspicioned and then became convinced that his relative was stealing from the estate. As a matter of court record, however, everything on this score was in order. Morphy then became litigious and being learned in the law himself was able to create difficulties. He feared poisoning from the same source, and would eat nothing that his sister or mother did not prepare, and when a friend offered some sweets would not partake until the friend had first eaten of them. There is plenty of evidence to show that in other respects his mind was quite in order. He would go about the city alone, and was considered quite harmless, reticent, and perhaps eccentric. Mr. C. A. Buck of Kansas City has given a detailed account of Morphy's later days, and in it I can find no evidence pointing to a diagnosis of dementia praecox.

At one time his family proposed for his improvement placing him in a Catholic institution, but he argued his legal rights so clearly that the authorities were afraid to take action.

In 1882, after several futile attempts, he consented to permit Steinitz, then champion, to call, on condition that chess would not be mentioned. It was a poor meeting.

But there is evidence that through all these years he kept pace with the current affairs of chessdom, kept a board, and still liked chess. He played occasionally with his personal friend, Charles Maurian, and although these even ceased in the last few years, yet it is believed by those who knew him best that he never lost any in chess ability, nor did he show any dementia. He died suddenly in 1884, aged 47. Supposed cause was heart disease.

I have thought the diagnosis of his mental condition paranoia or paraphrenia.

In the foregoing histories there is nothing that one can hold chess responsible for.

Moreover the mental strain involved by tournament matches does not seem to produce neurasthenia or any of the phychoneuroses. Teichmann, Mieses, Kohn, Alapin, Lasker, Bardeleben and other professional players I have known or know of, do not appear or suffer from any such disorder. Yet tournament and match play contests commonly extend over a number of weeks, and often one such contest will closely succeed another. The strain, of course, is considerable and fatigue ensues but it is normal in character and the participants quickly resume their average tone. This evidence, therefore, tends to exclude over-work and mental application alone as the cause of the neurasthenia. It is more probable as Dejerine has so well argued that emotional influences of a depressive character must accompany the various mental acts to produce such a disorder.

450 Spitzer Building.

DISCUSSION.

Dr. Towne: I happened to have the good fortune to have spoken to Mr. Pillsbury about the mental processes he used in playing chess. He had used the imagery, visual method until he tried to play so many games. Then he found the visual method inadequate; he had also used a finger or hand movement and in playing chess developed a sense of position to such an extent that he was able to play 21 games at once. He also said he built the foundation of accurate memory on his childhood experience—his father had a paper and he took charge of the paper

route; he simply memorized the addresses of all the places where the papers were to be delivered.

Dr. Davis: I used to play chess in my young days when a student but one or two of my friends were compelled to leave school on account of chess. What affected me in the Doctor's paper is that he utterly disagrees with the idea that chess is a mental strain. I believe from a mental standpoint it is a beneficial thing to learn chess and to play it. I was also glad to hear that ordinary so-called mental fatigue has never produced neurosis.

CHAIRMAN: We are going to take 10 or 15 minutes recess and if the gentleman will kindly step into the adjoining room—smoking room—and Drs. C. E. Sidwell and Louis Smith, Chicago, will give a "Microscopical Demonstration."

---

## DEMONSTRATION OF THE LIVING AND STAINED SPIROCHAETA PALLIDA.

C. E. SIDWELL, M. D.,
Pathologist to St. Elizabeth Hospital.
AND
LOUIS D. SMITH, M. D.,
Urologist to Washington Boulevard Hospital.
CHICAGO, ILL.

That the *Treponema pallida* is the cause of syphilis is an unquestioned fact established by its fulfilment of Koch's laws. It has been found in

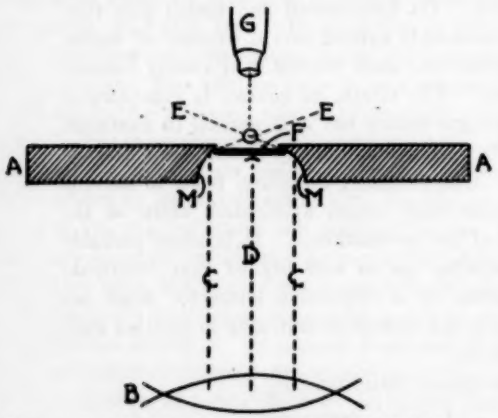



Fig. 1.—Longitudinal Section of Dark Field Slide. A, Slide; B, Mirror; D, Reflected Light Unable to Pass Through Dark Field; C, Light Reflected From Concave Mirror; F, Dark Field; G, Microscope; E, Point of Junction of Reflected Peripheral Rays.

every syphilitic lesion, produces an antibody, has been cultivated, and finally has reproduced the disease in experimental animals with recovery of the organism from the lesions produced. Again it has been recently established that so-called parasyphilis is in reality syphilis. Graves has been able to produce syphilitic lesions in the testicle of the rabbit by inoculation with the blood of the tabetic and paretic, and Noguchi and Moore have been able to show the Spirochaeta Pallida in the paretic brain and tabetic cord.

The *Treponema pallida* discovered by Schaudinn in 1905 belongs to the Genus *Spirochaetæ*, pathogenic to the higher animals, namely: *S. recurrens; S. pertenuis; S. microdentium; S. gallinarum;* and is an intermediate group between bacteria and protozoa.

The importance of the search for the identity of the pallida in the living state in the chancre to establish without doubt the nature of the infection, lies in the fact that with early recognition arises the possibility of early treatment; hence, we can most efficiently institute prophylactic treatment against the later nervous manifestations.

The method of choice for the discovery of the *Spirochaeta pallida* is with the dark field illuminator. This is a slide so constructed that only peripheral rays of sunlight, arc light, or in fact any strong white steady light such as the Nernst lamp furnishes, are able to be reflected above a dark field.

Briefly, the dark field illuminator consists of a perforated glass slide. The diameter of perforation on the under surface of the slide is greater than that of the upper surface. This beveled edge is concave and is mirrored. A disk or dark field, impervious to light, so completely fills the opening in the upper surface of the slide, that rays of light reflected from the mirror of the microscope are unable to pass directly up through the objective of the microscope; but peripheral rays of light, striking the concave mirror in the dark field slide, are reflected above the dark field or disk in such a manner that they converge about one millimeter above the upper surface of the slide. Any object placed where these rays of light converge, diverts them upward, so that some of the diverted rays pass up through the microscope.

### STEPS IN THE SEARCH FOR THE LIVE SPIROCHAETA PALLIDA.

1. Remove the Abbé Condenser from the microscope.

2. With the No. 3 objective locate the etched ring on the upper surface of the dark field. (This is called "Centering").

3. Cleanse the lesion with sterile gauze or an applicator.

4. Irritate the base of the lesion with curette or applicator to cause flow of serum (avoid bleeding).

5. Collect the exuding serum with capillary pipette.

6. Blow small drop of clear serum on a clean cover slip which lies on a plain surface.

7. Upon this press a clean slide (about 1 mm. thick), making firm pressure to insure a thin even film.

8. Place several drops of cedar oil on the dark ground slide and upon this the film preparation, cover glass up, avoiding bubbles.

9. With the No. 7 or No. 6 objective search for the *Spirochaeta pallida*, which exhibits the following characteristics:

It is an extremely delicate organism about 6 to 20 microns long with about 6 to 12 regular, closely set spirals with tapering ends.

These coils persist even when the organism is at rest, thereby distinguishing it from other spirochaetæ except *S. pertenuis* and *S. microdentium*.

The organisms are very actively motile, having three distinct motions, namely, forward and backward, rotary, bending and lashing. This motility is perhaps due to the interaction of a central contractile axis and its surrounding elastic pellicle. There are no flagellæ nor undulating membranes.

The *Spirochaeta pallida* appears luminous throughout its entire length while in motion.

Other luminous bodies are leukocytes, erythrocytes, Mueller's blood dust, air bubbles and various bacteria; and these cause some confusion while searching for *Spirochaeta pallida*.

In preparing the lesion for examination it must be understood that any applied antiseptic or medication will interfere with the examination; and further, when the secondary manifestations appear the spirochaeta has already left for other fields, hence, will not be demonstrable.

*(Caution). Material from these lesions is highly infectious.*

DEMONSTRATION OF SPIROCHAETA PALLIDA IN TISSUE.

The impregnation of the *Spirochaeta pallida* in tissues with the silver salts is very satisfactory only that it requires days, sometimes weeks, to make a perfect specimen and for this reason it is impracticable. It is most valuable in postmortem work. This is a comparatively simple procedure and consists of the following steps according to Levaditi:*

1. Harden pieces of tissues one or two mm. thick in formalin 10 per cent for 24 hours.

2. Rinse in water, then immerse in 95 per cent alcohol for 24 hours.

3. Place in distilled water till it sinks.

4. Transfer to 3 per cent aqueous solution of silver nitrate in blue or amber bottle and kept in incubator 3 to 5 days at 38° C.

5. Wash in water.

6. Immerse in the following solution: Pyrogallic acid, 2 to 4 gm.; formol, 5 c.c.; distilled water, 100 c.c. and kept in dark room at room temperature, seventy-two hours.

7. Wash in water again.

8. Embed in paraffin and cut, or freeze and cut.

The *Spirochaeta pallida* is stained black while the tissue stains mahogany color.

We find that hardening bits of tissue and placing them in 10 per cent silver nitrate in diffuse light gives practically the same results.

It is well to put several pieces of tissue through the solution at the same time, so that on sectioning and examination of one of these specimens, if the spirochaetae are poorly differentiated the other blocks of tissue can be kept in the stain till the spirochaetae are thoroughly impregnated.

DEMONSTRATION OF SPIROCHAETA PALLIDA BY JENNER'S STAIN.

1. Collect clear serum from the primary or secondary lesion and make a film on a clean slide.

2. Fix in absolute methyl alcohol one minute.

3. Immerse such slides in Jenner's stain made as follows:

Powdered Jenner's stain ½ gm. to 100 c.c. of Merck's absolute methyl alcohol and keep covered air-tight and free from water for 5 to 10 minutes.

4. Wash thoroughly in distilled water.

5. Dry quickly in air or over heat.

*Pathological Technique. Mallory and Wright, P 420.

6. Examine with oil immersion.

7. The *Spirochaeta pallida* stains faint blue.

The specimens for Giemsa's stain are collected and fixed as above, but slides should be immersed in Giemsa's stain, one c.c. of stain and ten c.c. of distilled water, preferably for 24 hours; then wash and dry as above.

INDIA INK METHOD.

1. Collect a drop of clear serum from the lesion on a slide.

2. Place a drop of India ink "Chin Chin Liquid Pearl," or "Higgin's" ink on the slide and mix the serum and ink and spread in a thin film over a portion of the slide.

3. Dry in air and examine with oil immersion.

4. *Spirochaetae* and other bacteria are not stained but show up in a dark field of ink as bright shining spaces corresponding to the kind of bacteria.

CONCLUSIONS:

1. The dark field illuminator is without doubt the best method with which to make an early diagnosis of lues.

2. The silver nitrate stain has few faults except that it requires considerable time.

3. The Jenner and Giemsa stains are of little value so far as a positive diagnosis is concerned, because of the confusion caused by shreds of tissue resembling *Spirochaeta pallida* and the loss of that distinct spiral shape due to fixation.

4. The India ink method is interesting but has the same fault as the other stains. Cracks in the serum in film, shreds of tissue and fibres cause confusion in the search for the *Spirochaeta pallida*.

1433 North Claremont Avenue.
25 East Washington Street.

---

## THE PRINCIPLES AND TECHNIC OF THE LANGE GOLD COLLOID TEST.

LOUIS D. SMITH, M. D.,
CHICAGO, ILL.
Urologist to Washington Boulevard Hospital—Assistant in the Department of Genito-Urinary Diseases Rush Medical College.

The year 1912 marked an epoch in syphilis of the cerebrospinal axis, when Swift and Ellis made known their autoserosalvarsan treatment, and incidentally directed more attention to spinal fluid analysis. The same year Carl Lange accidentally hit upon a new phenomenon exhibited by the spinal fluid in syphilis, while working on the biochemical reactions of metal colloids and albumins first investigated by Zsigmondy in 1901. Before going into the technic of Lange's so-called gold colloid test, a few explanatory notes pertinent to the principle of the reaction will be of interest.

Prior to Zsigmondy's investigations it was known that electrolytes such as salt solution would coagulate out colloidal solutions of metals, and that this coagulation was dependent upon the concentration of the electrolytes. The colloids in reality act like ions, as we understand them in physical chemistry, being positively and negatively electrically charged, and hence, losing their charges when oppositely attracted are precipitated out. This physical phenomenon of "Aussflochung" is a quantitative one in that if the balance between the quantity of electrolytes and that of gold colloid required for the reaction is destroyed no "flaking out" occurs.

Zsigmondy discovered that albumin solutions inhibited the precipitation (Goldschutz) and he was able to determine the protective or inhibitive points (Goldzahl) for various proteids, briefly the number of milligrams of proteid just necessary to inhibit the precipitation of 5 c.c. of 1 per cent colloidal gold in the presence of 0.5 c.c. of 10 per cent NaCl solution. The Goldzahl is constant for each protein.

Lange found in working with the proteins of spinal fluid that excessive amounts in disease favored this precipitation and that this "flaking out" occurred within definite dilution limits that were practically specific for paresis and taboparesis and more or less so for cerebro-spinal syphilis.

The importance of the Lange test becomes evident when we realize that the only specific test we have for syphilitic involvement of the spinal fluid is the Wassermann reaction, and the Lange gold colloid test certainly offers corroborative evidence of syphilis and parasyphilis at least. Furthermore, like the Wassermann test, the reaction may antedate symptoms of paresis. It is true that heretofore the Phase 1 reaction of Nonne by half-saturation with ammonium sulphate has given evidence of pathological excess of globulin, but there was no distinction possible as to the causal agent, be it syphilis or any other disease. A reaction as the Lange is therefore certainly a de-

sirable addition to our analytical armamentarium as applied to the spinal fluid, especially so because of its simplicity.

If there be any difficulty encountered in the performance of the test, it can practically always be attributed to the preparation of the reagent. However, if the details are accurately and unqualifiedly executed there need be no failure.

The following lists the apparatus and materials required, and if details seem excessive it must be understood that everything, just as Lange discovered, was essential to the preparation of a perfect reagent.

*A.* Glassware: All glassware must be of Jena glass.

1. Beakers: 1,000 and 2,000 c.c.

3. Graduates: 25 and 1,000 c.c., accurately graduated.

4. Liebig condensers: all glass; connections may however be made with plain cork stoppers, but no rubber must be employed.

5. Test Tubes: 120x12 mm.

6. Pipettes: 1 c.c., 10 c.c. and 25 c.c., all accurately graduated.

The cleansing of the glassware is very important. The condensers are cleaned with steam and rinsed by the first 200 c.c. of the distillate, which is then discarded. The other receptacles are rinsed with strong HCl followed by distilled water and hot air sterilized for 30 minutes. The test tubes are cleaned each time by boiling in 10 per cent potassium bichromate solution and then in distilled water, after which they are kept sterile in a clean covered container. The pipettes are rinsed in distilled water, dried with alcohol and ether and sterilized in a pipette box.

*B.* Solutions:

1. Distilled water—Redistill freshly distilled water and collect in a sterile flask. The water must be used within two or three hours.

2. NaCl solution (0.4 per cent) should be freshly prepared for each test with Merck's C.P. NaCl.

3. Colloidal Gold Solution: Merck's reagents are used for all the ingredients of this solution.

Five hundred c.c. of the distilled water are heated slowly to 60 degrees C. in a sterile Jena beaker. When this temperature is attained add simultaneously 5 c.c. each of a 1 per cent aqueous solution gold chlorid (yellow crystals) and of a 2 per cent solution of potassium carbonate; mix immediately. At this stage, as quickly as possible and using extra burners, heat to 90 degrees C., but not exceeding 95 degrees C. or until bubbles appear. Turn out the flame immediately, and while briskly agitating add 5 c.c. of a 1 per cent aqueous solution of formalin. The previously clear, colorless solution of gold chlorid is at once reduced to the colloidal state with concomitant color changes.

When properly prepared the reagent exhibits, after numerous color changes, a brilliant red with an orange glint. The solution is absolutely transparent when viewed by either transmitted or reflected light. As such, when free from evaporation, it will keep indefinitely. If exhibiting any purple shades or fluorescense of the superficial layers, the preparation is at fault. As a standard for proper color comparison the following may be used:

10 c.c. N/10 NaOH.
1 c.c. congo red.
0.5 c.c alcoholic alizarin solution.

For the test in collecting the spinal fluid a dry, sterile, absolutely clean needle free from rust must be used, and the fluid collected in clean dry sterilized tubes. Bloody or contaminated fluids must be rejected. Although best used when fresh, if sterile, it may be kept for some time on ice.

*Technic of Test.* Into the first of 11 tubes placed in a rack add exactly 1.8 c.c. of 0.4 per cent NaCl solution and to the remainder 1 c.c. each. To the first now add 0.2 c.c. spinal fluid, mixing thoroughly. Then transfer to the second tube 1 c.c of the first mixture, and 1 c.c. of the resulting mixture in the second tube to the third, and so on including the tenth tube. This gives dilutions of 1-10, 1-20, 1-40, 1-80, 1-160, 1-320, 1-640, 1-1280, 1-2560, 1-5120.

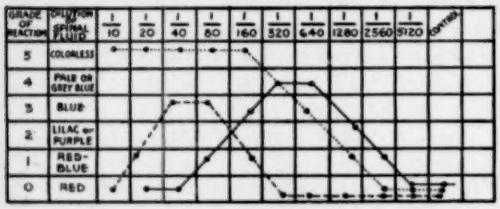
The eleventh tube is the control tube to be used either for the Nonne test according to Grulee and Moody, or merely as a color control as employed by Miller and Levy, when no spinal fluid is added. To each tube is now added quickly with rapid mixing 5 c.c. of the gold colloid reagent, omitting of course the eleventh tube if this is to be used for the Nonne test.

*Reading of the Reaction.* Interpretation is possible with experience almost at once. It is better, however, to wait ten to twelve hours, the

observation being made in natural light. A negative reaction is graded "O" and a miximum "5", the latter consisting in complete decolorization.

The reaction consists in the purely physical phenomenon of color changes due to alterations in the dispersion value of the colloidal gold. The reaction is dependent more on different qualitative arrangements of proteids rather than on true quantitative increase, since the strength of the reaction bears no constant relation to the amount of proteid present.

The following, a composite table, arranged from tables given by Miller and Levy, serves to illustrate typical reactions:




Key:— - - - - - - *Luetic zone*—confined to first four or five tubes. Flaking out usually greatest in dilutions of 1-40 to 1-160 and never exceeds a "4" reaction.

———— *Meningitic zone* with "Verschiebung nach oben" introduced by Lange. By this is meant a reaction maximum in the higher dilutions.

. . . . . *Paretic zone*—In this the first three to six tubes are characteristically of the "5" type.

In a review of the literature on this subject and from my own work, it is apparent that in taboparesis and paresis the findings are constant and conclusive, somewhat less so in tabes and cerebrospinal syphilis. It is therefore, of great importance, for by thus seeking the dispersion value of the protein substance in the spinal fluid in this simple manner, we can at once distinguish between syphilitic and non-syphilitic conditions.

Finally, since at the present time the gold colloid reagent already prepared can be readily obtained there should be no more difficulty involved in the performance of the Lange than in the Nonne test.

25 East Washington Street.

## THE LANGE GOLD-SOL. TEST IN GENERAL PARALYSIS.

G. W. Brock, M. D.,
Physician, Peoria State Hospital.
PEORIA, ILL.

No attempt was made to test out this laboratory method as to its specific reaction in various mental and nervous diseases, as the work represented in this paper is based almost solely on the paretic suspects that have come into the Peoria State Hospital during the past five months.

Lange's test is based on the observation of Zsigmondy that certain albumins on contact with a solution of colloidal gold in the presence of an electrolite caused a clumping of the colloidal particles when the albumins were present in certain concentration producing various color changes. That less diluted solutions possessed a protecting power which prevented color reaction, and that the reaction was more marked at different dilutions with various albumins pointing toward a specificity of reaction.

The technic is as follows: Place in a test tube rack 10 test tubes. In each place 1 c.c. of a 0.4 per cent solution of sodium chloride. To the first add 0.8 c.c. more of the sodium chloride solution and 0.2 c.c of the patient's fluid to be tested, which gives a dilution of 1 to 10 in the first tube. Mix thoroughly and remove 1 c.c., transferring this to the second tube, repeating this procedure throughout the series, which gives dilutions from 1 to 10 to 1/5120. After mixing in the 10th tube, discard 1 c.c. Having made the dilution, add 5 c.c of the gold-sol. indicator to each tube and let stand 24 hours before reading the results. In marked cases of general paralysis a change is usually seen in a few minutes.

The color reaction ranges from red and red blue, red blue and blue red, violet and dark blue to light blue and clear, the color scale representing successive increase of reaction. The color changes are somewhat vague in some cases, the reaction not always being clear cut, so that slight differences in reading might occur with different individuals.

The greatest difficulty in this test is the production of the indicator, which should be clear and of a rich, yellowish cherry red color. It is prepared as follows:

To make 500 c.c. of indicator, take 500 c.c. of

double distilled water in a 1,500 c.c. Jena glass beaker and heat slowly over wire gauze to about 60 degrees C. When a few bubbles begin to start add while heating 5 c.c. of a 1 per cent solution of gold chloride and then follow quickly with 5 c.c. of a 2 per cent solution of potassium carbonate, or the potassium carbonate can be added to the distilled water before the heating is commenced. Increase the heat and heat rapidly to boiling. Remove the flame and add immediately 5 c.c. of a 1 per cent dilution of liquid formaldehydi and at once shake vigorously until the proper change of color comes, which takes from one-half to five minutes. The change should pass from a bluish red to amethyst, reddish pink and finally red with a slight yellowish tinge. A solution will usually keep only about four or five weeks at room temperature. The water used in making up the indicator must be double distilled, using Jena glass boiling flasks. The rest of the condensation apparatus may be constructed of common glass and ordinary corks, not rubber, are used in making connections. All glassware must be scrupulously clean, washing with soap, rinsing in 0.5 per cent solution of nitric acid, then washed in distilled water and dried with heat.

The presence of an excess of the proteins is responsible for a positive reaction in this test. The normal cerebrospinal fluid contains a very small amount of protein, which is considered by various capable authorities to be serum globulin, serum albumin, or to consist of both substances. Greenfield in a study of albumin estimation, using a modified Noguchi butyric acid test, estimated that in normal serums there was a precipitate equal to from 1 part in 8,000 to one part in 2,000.

Albumin should not be over 0.25 gram to the litre. In pathological conditions the proteins are increased, varying according to the nature of the inflammatory process. Schaller reports that in acute meningitis, serum albumin is increased, while in syphilitic affections the serum globulin is in excess,—attaining an amount equal to, or exceeding, that of the serum albumin present. The presence of a protein in pathological amounts may be determined by a number of methods, all much alike, with the exception of the Lange gold-sol. method. These methods include precipitation by hydrochloric acid, nitric acid, trichloracetic acid, butyric acid, alcohol, magnesium sulphate, zinc sulphate, ammonium sulphate, Esbach agent, etc. Of all the precipitation methods, those of Nonne-Apelt, Ross-Jones and Noguchi are the only ones used widely for clinical examinations of the cerebro-spinal fluid. These tests depend on albumin coagulation, while the Lange test depends on the reduction of a colloidal salt. As to specific reaction, Lange found that all cases of cerebro-spinal syphilis reacted in about the same dilutions. The reaction for general paralysis being typical, while the reaction in tabes was marked, but less characteristic than in general paralysis. These reactions were more marked in the lower dilutions, while in the non-specific cases of meningitis, the reaction was more marked in the higher dilutions.

Eicke reports on 323 cases. He found that in secondary syphilis the reaction occurred at dilutions of from 1-25 up to 1-130. The maximum always being between 1-40 and 1-80, the tint purple. General paralysis 1-10 to 1-640 white tint. Tubercular meningitis 1-320 to 1-1280 purple. Suppurative meningitis 1-160 to 1-2560, the color reaction running through all the tints down to white and back again to violet. The reaction was considered remarkably specific and extremely sensitive and reliable. A negative reaction was obtained in cholera, circular insanity, dementia praecox, arteriosclerotic dementia, epilepsy and neurasthenia. He also found the reaction is not so pronounced in tabes as in general paralysis and states that it resembles the ordinary type of syphilis.

Grulee and Moody report 25 cases in the diagnosis of congenital syphilis. The reaction was most marked in dilution of 1-40 and 1-80, in cases of clinically congenital syphilis. Two cases of tubercular meningitis reacted most markedly in dilutions of 1-80 to 1-160 and 1-320. They suggested the test will probably prove valuable in the diagnosis of congenital syphilis, their reactions being considered quite specific.

Sippey and Moore reported 150 cases before the Section in Mental and Nervous Diseases at the Minneapolis meeting, June, 1913, stating that syphilitic cases reacted with maximum intensity in dilutions of 1-40 to 1-80, while the non-syphilitic cases reacted with maximum intensity around dilutions of 1-640. Dr. Gabby, working in the Psychopathic Institute at Kankakee, examined several hundred cases and reports reactions in

cases of dementia praecox, blue-red in color at dilutions of 1-40 to 1-80.

In the 50 cases examined at the Peoria State Hospital the gold-sol. test was positive in 40 cases of general paralysis, giving reaction of maximum intensity in dilution of 1-10 to 1-80. The Nonne-Apelt, Ross-Jones, Noguchi butyric acid test and the Wassermann reaction of cerebro-spinal fluid were also positive in all cases.

The Fehling reaction was absent in 80 per cent and the cell count averaged 33 cells per cubic millimeter. Ten other cases, including two cases of dementia praecox, two of arteriosclerotic brain disease and one each of cerebral hemorrhage, idiocy, brain tumor, manic-depressive psychosis, neurasthenia and not insane were negative. The cell count in these cases averaging 2.1 cells per cubic millimeter. The cerebrospinal fluid used for the tests should not be blood contaminated. In employing the Nonne-Apelt and Ross-Jones tests, Merck's neutral ammonium sulphate gives more accurate results. Of the two tests, in the Ross-Jones contact method the reading is more clear cut, and I believe is to be preferred to the Nonne-Apelt test. The gold solution will not keep indefinitely as formerly stated. Its preparation is the only difficult part of the technic, and double or triple distilled water and clean glassware will prevent many failures.

The solutions that are underheated in the preparation of the indicator do not pass through the color changes as rapidly as those that are brought to a higher temperature, requiring a longer period of agitation. The indicator is readily reduced by all the acids and is not reduced by the usual alkalis as ammonium and sodium hydrate, etc. Alkalis not only do not cause reduction, but also inhibit reduction in the presence of cerebrospinal fluids that have the power of reducing indicator when not contaminated with alkalis. Any contamination of reagents or glassware with acid or alkali will give incorrect readings. This reaction seems to be quite specific in the diagnosis of nervous and mental diseases. The specificity of the test showing a maximum reaction in the lesser dilutions in syphilitic affections and a maximum in the higher dilutions in the acute forms of meningitis, may be due to a difference in the type of increased protein present, as to whether it is serum albumin in the acute forms of meningitis or serum globulin in the syphilitic affections. I consider this the best chemical test of the cerebrospinal fluid in present use, but, considering the simplicity and reliability of the Nonne-Apelt or the Ross-Jones and the Noguchi butyric acid tests, and that in cases of general paralysis the cell count and Wassermann reaction of the cerebrospinal fluid are also made and are the most reliable findings in diagnosis, I do not believe that this test will ever come into very wide usage, except in very doubtful cases, when it may be used on account of its reputed specific action.

---

## THE RELATION OF SYPHILIS TO THE PRODUCTION OF FEEBLE-MINDEDNESS.

GEO. BLISS, M. D.,
FT. WAYNE, IND.

For a good many years, statements have been made by social workers, philanthropists and physicians about the very large part syphilis has and is taking in causing mental defect. These statements have been growing steadily stronger and stronger until you often hear it said today that syphilis is the cause of 50 to 60 per cent of mental defect. These statements have often been made with very little real data for a basis, and this paper describes an attempt to get some real facts concerning this important subject.

We do know positively that syphilis is a very definite factor in producing insanity. Reasoning from analogy, it is fair to suppose that so common and widespread a disease is also a large factor in producing mental defect. Inasmuch as facts and not theories are what count in medical science, I determined to find out, if possible, what proportion of inmates in the institution at Fort Wayne, whose defect could not be accounted for, would show a positive Wassermann test. This at first seemed a much more easy task than we found it.

The law of Indiana provides that mentally defective children between the ages of six and sixteen may be admitted to our school upon application of parent or guardian and the certificate of a physician as to mental defect and freedom from communicable disease. A law also provides that mentally defective females between the ages of sixteen and forty-five may be committed by a

Judge of the Circuit Court after a proper hearing. No provision is made for males over sixteen.

In the first place, a definite cause other than syphilis can be determined in about 75 per cent of our inmates. These causes that we know are feeble-minded, epileptic, and insane parents or some near relative; in other words, heredity cases; and cases caused by disease, such as any form of meningitis, lesions from broken blood vessels, as in whooping cough or convulsions, and cases of definite injury at or soon after birth.

There are cases of direct infection among the adult female women committed to us by the courts, consequently we have left these women entirely out of the test. Excluding all those cases for the cause of whose mental defect we could more or less definitely account, and excluding all doubtful cases, there then remained 142 boys and 134 girls; 276 cases in all, for whose defect no definite cause could be assigned.

In determining the heredity side of the question, we took first, the case records as we have them on file at the school, going carefully over each of the 1,293 cases. We then went over each case with our record clerk, who has had charge of these case records for 12 years and knows the relatives of the children very thoroughly. In doing this we left out every case that was doubtful, and only took those cases where, so far as our records and observation go, the relatives were apparently normal people. These 276 cases were all admitted to the institution under 16 years of age, almost all of them under 12 years of age, so that their having personally acquired syphilis was *nearly* though not quite ruled out. On these 276 inmates a Wassermann blood test for syphilis was done by Dr. H. K. Langdon, of Indianapolis. The blood was taken under thoroughly aseptic conditions by my assistants at the school, Drs. Taylor and Hanaway, allowed to stand over night, and the serum sent to Dr. Langdon, by express. All the serum arrived in very fine condition and Dr. Langdon believes the tests to be as good ones and as accurate as can be made by this method.

These tests show that syphilis certainly does not seem to be responsible for 50 to 60 per cent of defect in the children of normal parents. This test is not broad enough nor based on enough data to be conclusive, but it certainly ought to point the way to more careful and accurate statements by those interested in these subjects.

As a partial check on the results obtained above, we next tested 66 children for the Wassermann test just as they came in the divisions—that is without any reference to parentage, taking the youngest children we had; with the results shown in the lower table.

I will admit before someone in this assembly asks me, that this test is no gauge of whether the father of the child may not in the past have had syphilis, and I think a Wassermann test of a large number of fathers and mothers of these children would be of great value in these cases. Being obviously a very difficult, if not impossible thing to do, we have in these tests some gauge of the apparent number of mental defectives whose mother had an active case of syphilis at the birth of the child and these tests certainly do not show as large a prevelance of the disease in mental defectives as is commonly believed and stated.

I sincerely hope that this work may be only a beginning of some thorough studies of this important subject and that modern applied science may show us whether or not syphilis does play the large part ascribed to it in producing mental defect.

In conclusion, I wish to thank Dr. Langdon, who did the work without charge other than for materials, and to my assistant physicians at the school for their careful and painstaking work.

## WASSERMANN TESTS.

### GOOD PARENTAGE.

| 4+ | | 3+ | | 2+ | | 1+ | | Negative | | Clinical Evidence | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | |
| 2 | 0 | 1 | 1 | 2 | 3 | 8 | 16 | 139 | 114 | 11 | 12 | 142 | 134 | 276 |
| 2 red | . | . | 1 red | . | 1 red | 2 red | 3 red | ... | ... | 4 red | 5 red | ... | ... | ... |

### WITHOUT REFERENCE TO PARENTAGE.

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 3 | 0 | 0 | 0 | 0 | 1 | 2 | 30 | 30 | 7 | 5 | 31 | 36 | 66 |
| . | 2 red | . | . | . | . | 1 red | 1 red | ... | ... | 1 red | 3 red | ... | ... | ... |

Red figures mean cases showing clinical evidence of syphilis.

---

## CONTROL OF VENEREAL DISEASES.

W. A. EVANS, M. D.,
CHICAGO, ILL.

*Mr. Chairman, Ladies and Gentlemen:* I want to dispossess your minds of the idea that I have any paper to present and also of the idea that I am going to talk to you technically, for such is not my intention. The subject that I am an-

nounced to discuss is the control of venereal diseases. In my experience as health officer of this city, I had occasion to give a good deal of thought to the subject of control of venereal diseases. As a part of that duty, or at least as relating to that duty, I had the privilege of serving on the Vice Commission of the City of Chicago. I am going to speak to you from the standpoint of those two experiences, rather than from the medical standpoint.

I am going to speak to you from a sociological rather than from a medical standpoint. I have frequently heard our profession charged with taking two positions—that it seems to me they do not generally take, although there are members of the profession that do take these positions. The first of these I am going to state without arguing: The first of these positions that our profession is accused of holding, is that it is well for the physical welfare, particularly of the male, that he should be sexually uncontrolled. I do not believe that the profession, a majority of it or any organized part of it has ever taken that position, or that it has figured very largely in medical literature. All I am going to say on that question, is that I do not believe that it is the position of the medical profession.

Now, the second position: I have heard it said that the medical profession is in favor of a recognition of the professional prostitute and such machinery as has been developed in connection therewith, particularly that the medical profession is in favor of segregated districts and the regulation of such segregated districts, a part of the regulation to be medical inspection and certification of the prostitute. I do not believe that that is the position of the majority of the profession. It is the position of a very small minority I am willing to concede but not the majority. I have been present where the subject was discussed at medical meetings; first at the meeting of the public health association in 1909, in Milwaukee, where it was up for general discussion—there was no dissenting voice—everybody was agreed that segregation of vice was not a proper community procedure; that it did not control vice. The paper was presented by the then Surgeon General of the Army and by other speakers. It came up before the section of Preventive Medicine of the American Medical Association at the Los Angeles meeting. At that time, a man who had been health commissioner of San Francisco spoke for segregation but with that exception the arguments that were offered were altogether against segregation. It came up again before the American Public Health Association in 1913. In that discussion there was no one who spoke in favor of segregation; therefore I believe we are justified in concluding as far as expressions have come from the organized profession we are not in favor of segregation. It is a subject we are going to discuss here.

The Health Departments are interested in the control of various forms of contagion. Rather strangely they have overlooked these kinds of contagion and possibly because they have not known just how to proceed. Now I am not arguing and am not taking any position on the general subject of sexual immorality. If we proceed against that which is called vice, then we are storming one of the bulwarks—we are striking at one of the places that is responsible for a great deal of venereal diseases. However, if we would gain in this trouble, we must go at it by gradual repression; we must concentrate our efforts on that form of commercialized prostitution that we commonly speak of as vice. The question comes as to how can that best be controlled. As is well known to the majority, European countries have, for a number of years, attempted to recognize vice as a condition, to limit its operation to certain parts of the city; to attempt by police control and by medical examination to limit the harm that is produced by it in those parts of the city. One of the things that were made perfectly clear to the vice commission was that efforts at segregation, at least in this part of the country, did not result in segregation; that there were more people plying their trade as prostitutes outside of the regular or so-called "red light" district than within that district, and to speak more specifically, more women registered with the police department in the Cottage Grove Avenue District here in Chicago, a resident district, than were registered in the "red light" district; or, in other words, that this Cottage Grove Avenue district, which was not a segragated district, actually had more women plying the trade of professional prostitutes than were to be found in the "red light" district. The same thing was found to be true though in lesser measure, in every part of the city.

I remember that the investigators who went to the Wilson avenue district had no difficulty whatsoever in uncovering a large number of homes, houses—that were occupied by women and used by women as houses of prostitution. Therefore, at least, insofar as this locality is concerned with governments, organized as our governments are, segregation does not segregate. It is possible that segregation does segregate under the conditions that prevail in Japan, that I am not in a position to speak of. With the absolute power that they have it is possible they can accomplish results that we do not under the circumstances that prevail in American cities.

Probably you are more interested in the proposition that regulation regulates. It has been assumed that vice having been segregated it would be possible to regulate the people who are there and the practices that are there. The fundamental law of every state declares no compromise with vice whatsoever and consequently the difference that exists between the standard that is written in the law and the standard of human behavior. There has grown up a regulation by rule, the rule often directly contradictory to the law. That was true here in Chicago—the state law and the city law. The police department passed rules that were directly contradictory to the state law but were more in keeping with the public sentiment as it existed. But these rules did not even serve to regulate. It was not at all difficult to uncover the fact that the police regulation did not regulate.

One phase of this regulation is the medical examination. I do not believe I will take time arguing to you that a medical examination with its certificate cannot be made to deliver the goods that, in some quarters at least, it is thought to deliver; that is to say, that it cannot be a guarantee of safety against venereal diseases. In the first place there arises the difficulty in the administration of the medical examination and certification. I have now in my possession certificates signed by physicians with the name of the individual left blank. These certificates taken from a stack of certificates found in the office of a house of prostitution. The certificates was to the effect that the woman had been examined and found to be free from disease, all duly signed, all the madam had to do was to issue a certificate to the girl. Of course, that is one of the faults of administration. The examination, which is made for 50 cents or $1.00, could not possibly be complete enough to show there is no venereal disease and no one could certify that a person found free of the disease would be free of it in the interval between the examinations. The examination could not possibly be complete enough to determine the facts that are certified to. It would not be possible to make an examination that would determine whether the woman was syphilitic or whether she had gonorrheal infection. Then there arises another difficulty, that no one could certify that the woman was free from venereal diseases, at least free from venereal diseases in a contagious stage, and that was the statement that was borne on the certificate; so that we found that medical examination did not or was not a feasible procedure. There is no place where a woman having venereal disease is so potential and harmful as in this place where the waters meet—as in a "red light" district—the parts of the country where people come in large numbers. We have not any facilities here—there is not adequate facility anywhere in this country for the treatment of the people who have venereal disease. The women who have venereal disease and the men who have it, taken as a class, are not profitable. In that particular work, the matter of making a living, they have got to get back to work as quickly as possible and that means that they will refrain from work and hold themselves under treatment until the time arrives when they do not give expression to the danger. They will take treatment for syphilis just long enough to remove the signs of danger, to take down the warning card, but not long enough to remove the danger itself. Where we have no proper hospital facilities these people get right back in the places where they can earn a living. The great advantage of doing away with the "red light" district is that it destroys the advertising facilities of houses of prostitution and in that we gain.

I believe that I have about occupied the time that I am allowed to occupy and I am going to close with this point: When you do away with a "red light" district you don't suppress prostitution; you don't bring about sexual morality—you simply step from something that was very bad to something that is not quite so bad. The danger is that as time goes on, people will forget the very great objections to a "red light" district,

a segregated district, whereas the objections to a plan that has superseded it will be more and more in evidence and therefore in time, they may think that they have conditions that are not as good as the conditions that they have left, the conditions that prevailed under the old plan. It is somewhat objectionable to have an increase in the number of houses of prostitution situated in the residence district. We are liable to have objections to that condition of affairs, magnified in our minds as time goes on. Time will serve to minimize the objections that prevail under the old system.

Now, we gain a very great deal when we disperse the "red light" district because we lose cohessiveness. A "red light" district brings together the people that operate therein; it forms bonds between them that are exceedingly powerful in political circles. It makes them to work together with a degree of effectiveness that is not possible under the system that supersedes it. Again, there is of course, objection to having these houses in our neighborhood, but we must not forget this—that every objection is a source of strength in dealing with the solution. The source of strength from their standpoint under the old plan was that the neighbors were tolerant; that there was no objections raised to the persons in the houses of prostitution and to the practices that were there known to prevail. Such objection was so weak that it was ineffective, but it was not true. If we set houses down in a residence surrounding, every neighbor becomes a scout—a scout first to detect the location of such houses, a scout to determine the circumstances and acts and occurrences that can be used as a means of routing such houses out. So that houses located in a residence district never could come to achieve the advertising possibilities that constitute the resources of the house in the "red light" district. Some of the old "red light" districts were known from Maine to California. There are no such advertising facilities of spreading information under the conditions that now prevail because the house itself, its persons and everything connected therewith must be kept secret. So we must not lose sight of the fact that we have not abolished the "red light" district; that we have done away with the commercialized vice; we have not suppressed venereal disease, but we have taken a step forward, and I believe one that is approved by the medical profession. I want to say that venereal disease as a health department problem is receiving attention. For about a year and a half the city of New York has been classifying venereal disease in any of its forms with contagious diseases and they are proceeding with it along the same lines as in the control of smallpox, scarlet fever, etc. We are not launching something new. New York has had experience now for a year and a half and, as I understand, it is getting along very satisfactorily. They have as many as 2,500 cases reported in a single year. They are simply trying to gain data by the study of which they can formulate the natural next step.

---

## TECHNIC FOR MIXING MATERIALS IN THE WASSERMANN TEST BY THE DROP METHOD.

W. T. Mefford, M. D.,
CHICAGO, ILL.

Before mixing materials in the test tube, one should be assured of the proper working strength of the hemolytic system, as it is of the utmost importance in the Wassermann test to have the hemolytic system working properly. The hemolytic system consists of complement, amboceptor and sheep's blood, combined as follows:

Into a small test tube put 10 drops of physiologic solution; to this add one drop of properly diluted amboceptor, one capillary drop of complement and one drop of a 50 per cent suspension of washed sheep's corpuscles, dropped from an ordinary dropper or a 5 c.c. pipette. Shake the test tube thoroughly and place in the incubator at 37 degrees C. and watch carefully to note the time in which the hemolytic system works. I prefer the hemolytic system to work in not less than seven minutes or more than twelve minutes. If the corpuscles are hemolysed in less than seven minutes, it is working too strong and more physiologic salt solution should be added to the diluted amboceptor, or a larger amount of blood may be used; either of these methods will correct the working strength of the hemolytic system. Again, if it takes a longer time than twelve minutes for the corpuscles to hemolyse it is working too slowly. In this event it is best to strengthen the amboceptor by a fraction of a drop of amboceptor, which is done by taking one drop of am-

boceptor and adding to it from three to five drops of physiologic salt solution, then adding one drop of this dilution to the already diluted amboceptor, or by using a smaller amount of sheep's corpuscles; either of these methods will increase the working strength of the hemolytic system.

I adjust my amboceptor and corpuscles to work to the capillary drop of complement, because of the fact that the complement is the material that we are generally short on.

It occasionally happens when using a weak or deteriorated complement that incubating at 37 degrees C. for 30 minutes will still further weaken this complement. When working with such a complement I advise to first incubate the complement in the salt solution for 20 or 30 minutes after which add the properly diluted amboceptor and corpuscles and observe the time of hemolysis after these materials are added.

To take the blood, I used a Wassermann laboratory blood taker. First tie a rubber constrictor or bandage above the elbow to distend the vein at the elbow. If the vein is not sufficiently distended a few backward and forward motions of the arm will distend the vein more. Cleanse the skin over the vein at the elbow with alcohol. Have the needle thoroughly clean, but just before inserting the needle put it through an alcohol flame. Insert the needle in the course or direction of the vein, with the bevelled point out or upward. As the needle enters the vein, make suction on the mouth-piece of the blood taker. After taking the amount of blood required, before withdrawing the needle, untie the constrictor, make pressure over where the needle enters the vein and withdraw the needle, continuing to make pressure over the vein for a short time after the needle is withdrawn to avoid a hematoma. Dress the puncture with iodine.

Remove the needle from the blood taker and immediately empty the blood into a large size test tube (¾ in. x 6 in.) by blowing through the blood taker. Leave the test tube stand for ten or fifteen minutes; as a rule by this time the blood has clotted. Now pass a small sterile wire between the test tube and blood; this is called breaking the clot. Lay the test tube on side for five or six hours at room temperature, until the serum separates, then pipette or pour off the serum, as the serum is all that is required in the Wassermann test. If a small amount of blood comes off with the serum, one can either centrifuge out the corpuscles or place it in the ice box over night and again pipette or pour off the serum. Inactivate the serum at 56 degrees C. for thirty minutes. This is to kill the complement and improves the working qualities of the serum. If one is in a great hurry for the test, he can defibrinate the blood as soon as drawn and centrifuge off the serum immediately.

The small sized Wassermann laboratory blood taker holds 15 c.c.; the large size holds 30 c.c. I usually take 10 or 15 c.c. of blood as one can take off the serum better; this is especially the case with beginners. By taking 10 or 15 c.c. of blood if one gets a strong positive, or a good negative, these can be used for controls. My long experience teaches me that one cannot depend upon a one-time reaction. I always put through a second or confirmative test of the first, if the second does not confirm the first, I frequently have to put the same serum through many times before arriving at a correct interpretation of the reaction and for this reason I prefer a larger amount of serum. One can take the blood by inserting a large hypodermic or antitoxin needle into the vein, first tying a constrictor above the elbow after the arm has been prepared as above directed for taking blood with a Wassermann laboratory blood taker. Let the blood flow directly into a test tube or small bottle and follow above directions for taking off the serum. One can take blood in antitoxin or large hypodermic syringe. Some prefer to take the blood from the lobe of the ear or tip of the finger in a Wright's capsule. I do not recommend this method of taking blood for the Wassermann test, as one seldom gets enough serum by this method to do a correct test. The time to take blood: I prefer to take the blood early in the morning before breakfast, or just before the noon or evening meal. If you take the blood before the meals, you avoid an excess of chyle; chyle in serum causes rapid deterioration and will, to some extent, bind complement. One can use the same materials for testing the spinal fluid. It is my custom in testing the spinal fluid to use both an active and inactivated fluid. To take the spinal fluid, use a larger and longer needle. I usually use for this purpose a number 18 size needle from four to five inches long, with a rather short point. These needles are now made with a plunger or stylet in the needle

that the blood may not be so liable to mix with the spinal fluid.

As you can now purchase in the market standardized materials for making the Wassermann test, and as the working strength of these materials is approximately given it is rather easy to mix materials in the test tube. The test tube should be thoroughly cleansed and sterilized. I use a test tube 11 or 12 mm. in diameter by 100 mm. long, or (7/16 in. in diameter by 4 in. long). For all materials, except the complement and corpuscles, I use a pipette made from a thin wall, 7 or 8 mm. diameter glass tubing, drawn to 2 mm. Cut small end of pipette square across. I use a teat or blind nipple on these pipettes, holding them horizontally in dropping materials in test tube. By this method it is the weight that determines the amount of material in each test tube. For the complement I use a capillary drop, for the sheep's corpuscles I use 5 c.c. pipette or ordinary dropper. I standardize my alcoholic luetic liver extract to work from this 2 m.m. diameter dropper or pipette. I also dilute my amboceptor to work from this same sized dropper. From my experience I have found the 2 mm. diameter drops the proper amount of serum. Test tubes should be thoroughly shaken each time after materials are added.

For mixing materials in test tube: *First,* number the test tubes 1, 2, 3, 4, etc., with a glass-marking pencil. *Second,* put in each test tube 10 drops of physiologic salt solution, dropped from a 5 c.c. pipette or ordinary dropping bottle. *Third,* one drop of alcoholic luetic liver extract in test tubes, 3, 5, 7, etc. *Fourth,* one drop of known negative serum in test tubes 3 and 4. *Fifth,* one drop of known positive serum in test tubes 5 and 6. *Sixth,* one drop of serum to be tested in test tubes 7 and 8. *Seventh,* one capillary drop of complement or Guinea pig serum in test tubes 1, 3, 4, 5, 6, 7 and 8. *Eighth,* incubate 30 minutes at 37 degrees C. *Ninth,* after incubating 30 minutes, add one drop properly diluted amboceptor in each test tube. *Tenth,* one drop (dropped from a 5 c.c. pipette or ordinary dropper) of 50 per cent washed sheep's corpuscles in each test tube. *Eleventh,* return to the incubator and incubate 15 to 30 minutes at 37 degrees C. Usually the test has worked in this time. If more than one serum is to be tested, one can add as many sera as he wishes, using the above controls for the whole test. Tube one, is the same as the hemolytic system and is the control showing that the materials are working properly. Tube two does not contain any complement and is a control that there is nothing in the amboceptor or corpuscles to cause hemolysis. It is also a comparison for the strongest positive reaction in the Wassermann test. By comparison of the drop method and this proportion of materials with the regular Wassermann method of mixing materials, I find the drop method correct and it will save one much time and material.

The materials required in the Wassermann test besides the laboratory glassware, etc., are al-

CHART FOR MIXING MATERIALS IN THE WASSERMANN TEST.

W. T. Mefford, M. D.

| Steps— | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Materials and Names of Individual's Serum— | Number of Test Tubes. | Ten Drops of Physiologic Salt Solution from a 5 C. C. Pipet or Ordinary Dropper in Each Test Tube. | One Drop Luetic Liver Extract in Test Tubes 3, 5 & 7. | One Drop of Known Negative Serum in Test Tubes 3 and 4. | One Drop of Known Positive Serum in Test Tubes 5 and 6. | One Drop of the Serum to Be Tested in Tubes 7 and 8. | One Capillary Drop of Complement or Guinea Pig Serum Test Tubes 1, 3, 4, 5, 6, 7, 8. | Incubate 30 minutes at 37° C. | After Incubating Add 1 Drop Properly Diluted Amboceptor to Each Test Tube. | One Drop from a 5 C. C. Pipet or Ordinary Dropper of Washed Sheep Corpuscles in Each Test Tube. | Return to Incubator Until Test Works. | Note results. |
| Hemolytic system..... | 1 | 1 | 0 | 0 | 0 | 0 | 1 | | 1 | 1 | | |
| Amboceptor and corpuscles. | 2 | 1 | 0 | 0 | 0 | 0 | 0 | | 1 | 1 | | |
| Negative control ..... | 3 | 1 | 1 | 1 | 0 | 0 | 1 | | 1 | 1 | | |
| ..... | 4 | 1 | 0 | 1 | 0 | 0 | 1 | | 1 | 1 | | |
| Positive control ..... | 5 | 1 | 1 | 0 | 1 | 0 | 1 | | 1 | 1 | | |
| ..... | 6 | 1 | 0 | 0 | 1 | 0 | 1 | | 1 | 1 | | |
| John Smith or ..... | 7 | 1 | 1 | 0 | 0 | 1 | 1 | | 1 | 1 | | |
| Serum to be tested ..... | 8 | 1 | 0 | 0 | 0 | 1 | 1 | | 1 | 1 | | |

Shake tubes after adding each material.

Materials at head of column go in such tubes as are marked (1) in chart. Materials at head of column do not go in such tubes as are marked (0) in chart.

coholic luetic liver extract, sheep-rabbit amboceptor, complement or Guinea pig serum, sheep's blood, known positive and negative sera for control and normal salt solution.

One must make a chart and write the names of the individual whose serum is to be tested and the number of the test tube in which it goes, namely: Tube No. 1 contains the hemolytic system; tube No. 2 contains besides the salt solution, amboceptor and sheep's corpuscles; tubes Nos, 3 and 4, negative sera for control; tubes Nos. 5 and 6, positive sera for control; tubes Nos. 7 and 8, John Smith's or serum to be tested, etc.

To interpret or read the reaction beginners should thoroughly inform themselves as to the degrees of hemolysis. I call the strongest positive reaction four plus, "XXXX" the weakest positive reaction one plus, "X." My method of arriving at these conclusions, is to take the strongest positive serum, three parts or three drops and add one part or one drop of normal salt solution and use one drop of this dilution in the test tubes in which it goes; this will give a three plus "XXX" reaction. Again I take two parts or two drops of the strongest positive serum and add two parts or two drops of normal salt solution and use one drop of this dilution in each test tube in which it goes; this will give a two plus "XX" reaction. Third, I take one part or one drop of strongest solution and use one drop of this dilution in each test tube in which it goes; this will give a one plus "X" reaction. As one will observe I divide the strongest positive serum by quarters, namely: using 4/4, 3/4, 2/4, 1/4 strength. I know of no easier or simpler method for a beginner to learn or interpret the degrees of comparison of reaction. In fact, if one wishes to be absolutely correct in doing this test, I think they should use this technic for controls or comparison for the various sera to be tested in every test.

When the test has worked correctly, the time to interpret or read the reaction is when tube 1 or the hemolytic system and tubes 3 and 4, the negative control, have completely hemolysed or worked. Usually when the control tubes 3 and 4 have worked, those tubes that have no luetic liver extract in (these tubes are the controls to see if there is anything in the patient's serum that will prevent hemolysis or bind complement) have worked, except tube No. 2 which has no complement. There should be no hemolysis in this tube, and should be interpreted or read as a "XXXX" in appearance, be the same as tube No. 5 or the strongest positive control. One now records the findings, namely: Tube 1, negative; tube No. 2 four plus, "XXXX"; tubes Nos. 3 and 4 negative; tube No. 5, four plus, "XXXX"; tube No. 6 negative, and the sera being tested marked according to the degrees of hemolysis, whether it be "XXXX", "XXX", "XX", "X", or negative. If one desires to keep the test for a later reading it is best to centrifuge those tubes containing the luetic liver extract for a short time that any corpuscles not hemolysed, may be thrown to the bottom of tube. After centrifuging, place the test in the ice box; this will stop any further hemolysis and the test can be kept for a day or two for any further observation. A "XXXX" is where there is no hemolysis or if centrifuged for a short time, the corpuscles will be thrown to the bottom and the salt solution above will be as clear as before the corpuscles were added, or as clear as salt solution without corpuscles. A good positive control should appear or look the same as tube No. 2, or the tube that has in it only salt solution, amboceptor and sheep's corpuscles. Whether the reaction is "XXXX", "XXX", "XX", "X" or negative, will be determined by comparison with the control tubes representing these dilutions, and will appear brighter red in color and clearer or more transparent as it approaches a "X", or negative reaction.

A good negative control should appear or look the same as tube No. 1, or the tube that contains the hemolytic system. It should be a transparent or clear solution, cherry red in color and upon centrifuging there should be no corpuscles at the bottom of the tube.

---

## THE IMPORTANCE OF EARLY DIAGNOSIS IN LOCOMOTOR ATAXIA.

RALPH C. HAMILL, M. D.,
CHICAGO.

An idea has long been prevalent among both physicians and laity that locomotor ataxia is an incurable disease. On the other hand, it is well known that many of the clinical manifestations of syphilis respond readily to the proper remedies. Now that we know that locomotor ataxia is always

due to syphilis, that it is perhaps only a name applicable to syphilis of a certain stage and location, it is incumbent upon us to inquire why the clinical symptoms of the earlier period do, and those of the later, do not respond to treatment, and what are the symptoms so far as the nervous system is concerned that mark the early, perhaps curable, stage.

The lesions of syphilis are essentially of a more or less chronic inflammatory nature. The more acute they are the more readily do they respond to treatment: the chancre disappears in twenty-four to forty-eight hours after salvarsan; the macular rash and the sore throat with equal speed.

Is there a stage in locomotor ataxia in which the process is truly inflammatory?

There are three well known facts which indicate that syphilis invades the nervous system early. They justify us in the belief that this invasion forms the foundation for the development of tabes.

In the first place, we know that most of the so-called syphilis of the nervous system develops in the first four years of the disease. In the second place, the spinal fluid of many an untreated case shows a lymphocytosis and positive Wassermann in the first six months. And in the third place, many cases come to the post mortem table in the third to the fifth or sixth years of the infection showing a distinct spinal meningitis, which is frequently more marked on the dorsal surface of the cord.

Further, many cases of well-marked locomotor ataxia show, post mortem, definite leptomeningitis; we are surely justified in assuming that this inflammation of the meninges is a very important, if not the all-important, factor in the pathogenesis of the disease. In fact, certain authorities have long maintained that this syphilitic meningitis is the true cause of tabes.

A case dying on my service in Dunning from a gumma of the medulla, five years after the first manifestations of syphilis, showed a well-marked spinal meningitis, especially of the dorsal surface of the cord. There was a distinct thinning of the extrance zone of the posterior columns of the lumbar and sacral segments. Clinically it would have been very difficult indeed to have called this case one of locomotor ataxia. She had had some weakness of the sphincters and some so-called rheumatism. The rest of the clinical picture was obscured by the gumma. There were, however, the typical degenerative changes of early tabes and the inflammatory processes around the points of entrance of the posterior roots; the latter undoubtedly the cause of the former. Such a case is not a rarity by any means.

There will surely come a time when an inflammatory period will be recognized as the requisite forerunner of a degenerative period in locomotor ataxia.

Degenerative changes are scars. Inflammations may subside leaving changes which may be ignored, but scars are permanent. It is of prime importance to recognize this pre-tabetic syphilis before the inflammatory processes have caused a disabling scarring.

The symptoms and signs of this period of locomotor ataxia are not many. The pains are the most characteristic and the most frequent of the subjective symptoms. In many cases they begin within the first five years after the chancre, and in a large majority of cases they precede the ataxia by many months or even years. They are frequently called rheumatism and treated as such. In the great majority of cases they are in the legs and feet. There are two characteristic varieties. The commonest and the most characteristic are described as stabs or stickings repeated in a small skin area the size of a dollar, very often near the knee or ankle joints. The stabs are described as momentary—"As though a needle or fine knife blade were jabbed into me." These jabs are repeated every few seconds for a few minutes to twenty-four hours.

The painful periods may be frequently repeated during the day or week, and then comparative to absolute freedom be enjoyed for days or weeks. The periods come especially when the patient is tired. After the stabs have been repeated for a short time in one area, the skin of this area frequently becomes tender to the touch. The location of the tortured skin area changes from one period to another. Pains with these characteristics demand the exclusion of syphilis before the physician has done his duty.

The second variety of pains are the tearing, lancinating or lightning pains which shoot down the leg. They are very severe. They usually are spoken of as either so severe they can't be local-

ized, or as running deep in the muscles, or along the bone. They are momentary and repeated. They are frequently accompanied by an almost uncontrollable muscular twitch.

Both these varieties of pain are considered and treated as rheumatism, muscular or otherwise, and since they are fairly well controlled by fifteen-grain doses of aspirin the physician is confirmed in his diagnosis. With care this mistake can always be avoided. The pains are entirely independent of movements except indirectly as they come on with fatigue. Manipulations of the joints are entirely free from pain and may reveal a slight hypotonia rather than any resistance to passive movements. Tenderness will be restricted to the small area affected, and this is in the skin rather than in the joint structures. There is no increase in temperature either general or local.

These characteristics are sufficient to exclude the ordinary rheumatic pains of the joint structures. The pains of so-called sciatica which, with Dr. Patrick and Dr. Bruce of Edinburgh I believe to be in most cases due to hip joint disease, are usually referred along the course of the sciatic. They are especially liable to be caused by certain postural changes and strains. They are also rather more constant than those of locomotor ataxia and restriction of movement is the rule.

In herpes zoster the pain may simulate tabetic pains but the distribution is constant, is associated usually with dull ache in the spinal region corresponding to the segments involved, and in the course of a few days or at most two weeks the painful area becomes the seat of the characteristic eruption.

Tumor of the spinal cord is frequently associated with pains which can closely resemble those of locomotor ataxia, especially when the tumor presses upon or causes distortion of some of the posterior roots. The distribution of these pains is more constant than are those of tabes, they are associated with some rigidity of the spinal column in the region of the tumor, and there is apt to be a greater disturbance of sensation in the distribution of the affected segment than there is in tabes of short duration. In tabes of longer duration, when the sensory changes are marked, the pupillary changes and the ataxia are also quite apparent. Tuberculosis of the spine may also cause root pains similar to those of tabes. Tenderness of certain spinous processes, pain in these vertebrae upon movement or jarring, temperature and x-ray findings fix the diagnosis. Hypertrophic pachymeningitis causes similar pains, but is usually in the cervical region; the pains are in the neck and arms and are associated with increased deep reflexes in the legs and a Babinski sign.

In the differential diagnosis between locomotor ataxia and rheumatism the spinal fluid furnishes most important evidence. It is of course negative in rheumatism, while in locomotor ataxia there is usually a lymphocytosis, an increased globulin content and a positive Wassermann. In the diagnosis between locomotor ataxia and tumor, herpes, and pachymeningitis, the fluid findings, so far as cells and globulin are concerned, are not of such paramount value. A positive Wassermann however is of prime importance.

Related to these pains in that the pathology is the same, though the location of the lesions is somewhat higher up the cord, are the girdle pains and the visceral crises. The girdle pains may constitute the first complaint and be spoken of either as a bloating or as a band constricting the abdomen or chest. Careful examination will frequently reveal a slight diminution of pain or touch sensation in the area complained of.

The crises have nothing pathognomonic nor typical by which to identify them. One must look for the characteristic signs on the side of the reflexes and the eyes to discover their origin.

I have spent a good deal of time in the consideration of these pains because they are what most frequently lead the patient to the physician. Also, they are so often incorrectly interpreted largely because when the patient goes to his family physician and complains of pain, calling it rheumatism or gastritis or indigestion, he expects a prescription and relief and not a careful, thorough examination. He doesn't want to submit to the examination in the beginning of his trouble and the physician hesitates to force it on him. A careful description of these pains, however, should always lead the physician to such an examination and a discovery of the signs which, with the findings in the spinal fluid and blood, should lead to correct diagnosis and treatment.

In conjunction with the pains we may elicit a history of sphincter disturbance rather early in locomotor ataxia. This may entirely escape the

patient's notice and only after direct questioning will it be brought out that he can go twelve to eighteen hours without micturition and suffer no discomfort. Or, he may complain of considerable slowness in starting the flow. Less frequently he says that he loses a few drops if he is tired or strains in lifting, etc. Along with this complaint a diminution of sexual power and desire is a very frequent early symptom.

The only other early complaint at all common is a certain unsteadiness in walking in the dark; this, however, usually is brought out only upon direct questioning.

These are the things of which the patient complains as he comes to his doctor. And in many cases he tells the doctor what's the matter with him and asks for a prescription for the rheumatism, gastritis, etc., and he gets it. If the doctor does examine him at this early period he will usually find certain characteristic physical signs; some inequality in the Achilles reflexes or one kneejerk may be a little less active than the other. Such a decrease of the ankle or knee reflex on one side is of greatest importance, much more than a uniform bilateral decrease. The same holds true for the reflexes in the arms.

In the pupils there may be an inequality in size or intensity of reaction to light. One pupil may react quite well while the other reacts but slightly, or may react fairly promptly and then relax again. As with the tendon reflexes so with the pupils; an inequality of reflex reaction is of utmost importance.

There may be slight swaying when standing with the feet, heel and toe, together and the eyes closed. This may be intensified by having the patient stoop forward, or by having him try to stand on one foot.

Also in the early period there may be some diminution in both the deep and superficial pain senses. A firm pinch of the Achilles tendon is extremely uncomfortable to the normal man. Where this is not true one must always be suspicious of organic disease. The same is true of the testicles and the ulnar nerve at the elbow.

There may be diminished response to the pin prick over the lower leg or over a zone running around the chest at about the level of the nipples.

These are the more common early signs of locomotor ataxia. Where any of them are found in a patient complaining of sharp intermittent pains, of vomiting, of previous transient diplopia, of slight sphincter disturbance, or of diminished sexual power, a lumbar puncture should never be omitted. The presence of over five cells to the cubic millimeter of spinal fluid, an increase in the globulin content, as demonstrable by the ammonium sulphate test and, most of all, a positive Wassermann, will of course settle the question beyond the shadow of a doubt.

These findings in the spinal fluid not only settle the diagnosis, but form a basis for comparison with future punctures after treatment has been instituted. This comparison is, in my experience, of great advantage in judging of the efficacy of the treatment and a puncture should, for that reason, precede any therapeutic measures.

In conclusion, an early diagnosis of locomotor ataxia is important because an inflammatory period probably precedes the degenerative one. The inflammatory changes in the central nervous system are as susceptible to treatment as those in other locations. If syphilis in the pretabetic period can be diagnosed, we may be able to prevent the degenerative, disabling lesions sure to come with the further progress of the disease.

30 North Michigan Boulevard.

---

## TRANSIENT LESIONS IN EARLY PARESIS

B. F. Williams, M. D.,
Superintendent Nebraska Hospital for Insane,
LINCOLN, NEB.

The subject of paresis is of interest to medical men not alone in its pathological, but in its medicolegal aspect. It is not difficult to recognize the condition at a time when motor disturbance coupled with mental symptoms dominate the clinical picture, but to recognize the incipient case tests the skill of the most observing diagnostician. It is with the thought of emphasizing the importance of recognizing early symptoms that I am reporting a few cases gleaned from the history as given by the relatives of patients received at our hospital.

Those disturbances of motor functions bearing a definite train of symptoms and associated with known lesions are readily recognized and their significance properly interpreted. However, brief

disturbances of a transitory nature and bearing no relation to any known lesion and maintaining no constant and typical position in the symptom syndrome are worthy of more than passing consideration and bear greater clinical significance than are ofttimes credited.

Temporary paralysis of muscle groups, transitory aphasia, facial palsy, ocular and bulbar disturbances, apparently disassociated with any general disease process, should be regarded as an advanced manifestation of lesion of the central nervous system and in general paralysis may be due to early involvement of definite cortical regions.

In every stage of the disease known as general progressive paralysis the clinician finds the meaning of various elements in the clinical picture and relative prominence of individual symptoms quite mystifying. These atypical disturbances of motation have been described by Lissauer. Between the typical or classical general paralysis and the atypical process of Lissauer many transitional forms are encountered. In the clinical picture focal symptoms may play a part and it is with regard to these motor evidences of localization that I wish to present a few cases:

*Case 1.* Male, aged 28 years; occupation towerman at railroad crossing; without apparent reason suffered a short lapse of consciousness described as lasting but a few minutes but followed by disturbances of the muscles of deglutition which persisted for several weeks; returned to his duties as towerman, guarding the crossing of two important railway lines. He later became irritable, sleepless and expressed some delusional ideas concerning his duties as towerman and his connection with the company by whom he was employed. A neurological and serological examination revealed the evidence of central lesions coupled with mental manifestations. He was committed to the hospital and there became euphoric, irrational in conduct and is now confined to the hospital and classed as an agitated form of paresis.

*Case 2.* Man, aged 43 years; occupation, police detective; with a positive family history for insanity, suffered a transitory disturbance of orientation lasting for a period of a few hours and followed by no other evidence of motor or mental difficulty; returned to his position as detective and without any further manifestation of disturbance until he willfully drove his automobile over a high embankment. Upon being rescued from the wreckage was found to be in a very agitated and incoherent condition. These periods of disorientation recurred from time to time and it was observed that he had become somewhat euphoric and entertained delusions of an extravagant type concerning his wealth and physical ability. He was finally committed to the hospital, where serological and neurological examination revealed evidence of lesion of the central nervous system. He is now under treatment in the hospital as a demented type of paresis.

*Case 3.* Male, aged 50 years; occupation, locomotive engineer. About a year before the outbreak there occurred a transient disturbance of consciousness during which the patient failed to recognize his wife or his children. This condition was followed by a slight bulbar disturbance which passed away readily and there was no residual defect observed. No mental symptoms were observed until one evening while his train was standing on the siding he leisurely climbed out of the engine, walked back of the caboose of the freight train, deliberately shot the conductor and killed him instantly. Examination revealed a delusional condition in which he believed himself justified in committing the deed and entertaining a systmatized delusion involving his wife and several of his associates, all of whom he planned to destroy. The patient was committed to the Hospital for the Insane where the mental and motor disturbances have become progressive and the patient is under treatment as a demented type of paresis.

*Case 4.* Man, aged 38 years; plumber; fair education; family history negative; personal history one of intemperance and having been something of a rover, no history of previous mental trouble; history of syphilis ten years ago; one night without warning afflicted with a convulsive seizure lasting a few minutes, from which recovery seemed complete, except for the presence of an aphasia of the cortical sensory type. This condition existed for several months, after which it became less pronounced, although traces of the disturbance remained. The patient resumed his duties as a plumber but later became restless, sleepless and irritable. Became somewhat exalted in his ideas and later markedly delusional; believed that he was sought after by plumbers because of his superior skill; carried home with him tools which did not belong to him; planned to build five cottages and a ten-story hotel in Omaha and proceeded to collect brick bats with which to build the same. Imagined he owned his neighbor's homes, became obscene, profane and noisy. Committed to the hospital May 2, 1911, when he was found to be of the agitated type of paresis. He has, however, experienced a remission and is now in stationary condition.

*Case 5.* Man, aged 51 years; traveling salesman, good education, with a family history of tuberculosis; no history of syphilitic infection obtainable; gave incomplete history of an injury to the head sustained two years previous. First evidence of disturbance manifested in hemiopia, which trouble became more pronounced, finally accompanied by marked ataxia manifested in all volutary movements. Marked speech defect and motor disturbance; a delusional state intervened. Patient would talk with deceased father and would seek to defend himself from imag-

inary foes. Diagnosis of brain tumor had been made and the family labored under the impression that operative interference would relieve. He began to fail physically and died two years and one month after being received at the hospital.

There was nothing in the autopsy to indicate focal lesions. The tissue change being generally distributed and quite typical of paralytic dementia. However, the optic nerve showed tissue change and the posterior occipital lobes showed general involvement.

*Case 6.* Man, native of Sweden, aged 57 years, retired farmer, fair social and financial standing, negative family history and a personal history which does not disclose anything other than addiction to the moderate use of alcohol covering a period of several years. Patient manifested ptosis of right lid for two years before this attack. Mental symptoms developed in September, 1911, while at Excelsior Springs, having gone there to secure relief from sleeplessness and condition which he designated as nervousness. At this time he became greatly exalted, developing great aversion for his companions, manifesting great confusion, disorientation and psycho-motor activity. Confined in a private institution, all symptoms became increased. January 14, 1912, patient was transferred to the State Hospital for the Insane. Examination disclosed the following motor symptoms: slightly ataxic gait; slight Romberg; brisk knee jerk; marked intention tremor; fumbled noticeably when searching for his nose; right pupil slightly smaller than left, both reacting to light and to accommodation; physical findings were negative; mental state was one of marked confusion; unsystematized delusions were present; referred to the institution as being located on "Crowned Lands," his wife being related to Queen Victoria. His statements were not clear cut, but were rambling; conplained of everything being twisted, especially of the bed clothing and fixtures about his room. April 30 a positive Noguchi was obtained. About this time his mental manifestations became less pronounced; he referred less frequently to his delusions, but at times was rambling and incoherent. His gait become quite ataxic. He became less agitated, with the periods of restlessness confined to a few minutes' duration, after which he would sit quietly. The mental symptoms continued to clear markedly. In March a subsequent puncture was made with the following result: An increase of protein by Noguchi's butyric acid test, an increased number of cells, but the fluid gave a negative Wassermann. Mental symptoms continued to improve until May 1, when patient was paroled, at which time findings were little changed. His pupils were still unequal and are now sluggish to light. During the period of his parole application for the dismissal of guardian was made, the wife holding that his mental condition was such that he was capable of transacting business. An examination of this patient in court disclosed marked improvement in his mental condition, but stationary condition concerning motor disturbances.

*Case 7.* Man, aged 43 years, clerk by occupation, with a negative family history, but a personal history of having been intemperate for a period of six or seven years previous to 1911, at which time he was committed to the Hospital for the Insane as a dipsomaniac. He was released at the expiration of three months and it is recorded that he remained sober and industrious after his commitment.

In October, 1913, without any apparent reason, patient developed severe convulsive seizure. This was followed by an apparent recovery without any manifestations of mental or motor anomalies. He returned to his duties and in due time it was noticed that he was somewhat euphoric, boastful and irritable when crossed or opposed. His mental symptoms became so pronounced that he was finally committed to the Hospital for the Insane.

Patient showed progressive mental and motor symptoms and died about one year after admission. The autopsy revealed the lesions generally found in paresis.

Much has been written upon the subject of the distribution of the lesions in general paresis. Observations have been made based upon autopsies in which the diseased process has become extreme. We are taught that the anterior part of the brain was more severely attacked, that the vertex was prone to suffer early and that the occipital region was less involved, though not always free. Schaffer suggests that the brunt of the lesions was borne by the association centers, leaving the sensory cortices relatively free, thus grouping the attack as a system disease. Kaes maintains that the process was a diffused one, spreading over the whole cortex. Alzheimer finds that the lesions are widely spread in progressive cases and that in the majority of cases the orbital gyri suffer most and next the frontal poles and frontal half of the convexity. Samuel E. Orton in a paper before the Medico-psychological Association reports 50 cases unselected in which autopsies revealed lesions as follows in the order of severity: Frontal hippocampal, temporal, pre-central, post-central and lastly occipital.

Whatever information we may derive from these cases and the study of distribution of lesions in terminal cases of paresis may be augmented by our observation of symptoms in early or incipient paresis. The demonstrations of Noguchi and Moore of the treponema pallidum in the brain of cases of general paresis compels us to abandon the theory that this disease is a

pernicious metabolic disturbance set up by syphilitic infection and makes it necessary for us to consider the distribution of lesions from the standpoint of a true infection amenable to the laws governing the channels of infection as in other infectious diseases.

DEDUCTIONS.

1. It would seem that a number of cases of general paralysis encountered in general hospital practice are able to develop upon inquiry a history of more or less diversified and transient motor disturbances affecting limited areas and seemingly disassociated with the general disease process.

2. That these symptoms occur in many cases of general paralysis and do not enter into the case history is not only possible but probable.

3. That the symptoms may constitute an opportune and timely signal for vigorous antisyphilitic treatment before the mental symptoms appear is tenable.

4. That the individual with a history of syphilis is a worthy subject for careful observation from a neurological standpoint during the rest of his life is self-evident, and more especially if the individual is occupying a position in which public safety depends upon the integrity of his nervous mechanism.

5. The diversified nature of the early symptoms indicate a widely differing involvement of the cerebral areas and may have something to do with the variable findings in the carebrospinal fluid in early cases.

6. Recognition of central lesions and a history of syphilis promptly and vigorously treated might give a more optimistic coloring to our results by the intraspinuous route.

REFERENCES.

Tuzzek, quoted by Alzheimer.
Alzheimer work in histopathology.
Orton, Amer. Jour. of Insanity, Vol. 70.

---

## INTRASPINAL INJECTIONS OF NEOSALVARSAN.

GEO. W. HALL, M. D.; RALPH C. HAMILL, M. D.
Attending Neurologists, Cook County Hospital.
CHICAGO, ILL.

I wish to state in the beginning that we are willing to submit our experiences concerning the intraspinal injection of neosalvarsan at this early period only because of the desire to create a more general interest, a more favorable impression and greater confidence in this method of medication. Our first injections were made in the early period of March, 1914, and while they were preceded by the publications of Ravaut, whose article appeared in the Annals of Medicine in January, 1914, we began this work entirely independently of his experiences. However, his article has proven of value in aiding us and in the technic of the work. In our first injections we used a dilution so that six minims of the solution contained three milligrams of neosalvarsan. At the present time, however, we are using the more concentrated solution. We wish to call attention to the immediate results and symptoms which may arise following these injections, and it is upon that basis alone that we are willing to submit these reports, as it is entirely too early to make any statement as to permanent results of this method of medication.

Our experience extends over a period of four and one-half months and includes the injection of ten cases and twenty-five separate injections. These patients are under our care at the Cook County Hospital.

One of us has employed the technic as follows: Using a fine platinum needle, weighing out the dose of neosalvarsan and dissolving it in 12 to 18 c.c. of patient's spinal fluid and reinjecting by the gravity method. The other method has been the use of the ordinary needle used for spinal puncture and of the ordinary caliber. The neosalvarsan dissolved in a double distilled water in such dilution that one minim of the solution will contain the required dose. A small quantity of fluid has been withdrawn each time to note the presence or absence of blood and for the purpose of making the proper tests for the presence or absence of globulin and cellular elements. The spinal fluid is then caught in the barrel of a Record or Luer syringe, and while the spinal fluid is flowing one minim of the solution containing the neosalvarsan is dropped into the barrel of the syringe which causes it to be thoroughly mixed with the spinal fluid. The piston of the syringe is then immediately replaced and the fluid reinjected slowly into the spinal canal. We submit the following reports as to the symptoms immediately following these injections:

Case 1. Injected March 19, 1914. Diagnosis:

Cerebro-spinal syphilis. Positive Nonne and Noguchi. Injected 1.5 milligrams. Headache 10 hours later and on following day no symptoms. He left the hospital a few days later and no records were made later in the case.

Case 2. May 28, 1914. Tabes with gastric crises. Spinal fluid showing 40 cells to the cmm. with a positive Wassermann, Nonne and Noguchi. Injected three milligrams of neosalvarsan, diluted in 15 cc. of spinal fluid. Within six hours pains were noticed in the back of the head and to a less extent in the lumbar region. Temperature 98.8 degrees, gastric crises following within twelve hours. All symptoms then cleared up. Within four days gastric crises returned, as had been the custom for the past year or two, and they so persisted that it was deemed advisable to perform a Foerster's operation. The posterior roots were severed, including the sixth to the eleventh dorsal, which gave relief for about ten days, then the crises reappeared. He had two attacks since the operation about three weeks ago. The operation was performed by Dr. Kanavel of this city.

Case 3. May 19, 1914. Cerebro-spinal syphilis; positive findings in spinal fluid; cell count 281. Three milligrams of neosalvarsan diluted in 9.5 cc. of spinal fluid were injected, after the solution of neosalvarsan had been standing for forty minutes. Six hours later slight headache; otherwise feeling good. Temperature, 99 degrees.

May 20, pains were complained of in the legs and in the back of the head; temperature, 100 degrees. June 5, the second injection was made, consisting of three milligrams diluted in 12 cc. of spinal fluid; cell count, 66; positive Noguchi and Nonne; six hours later a very slight pain in the back and later gave a history of feeling fine. July 6, third injection of three milligrams of 16 cc. of spinal fluid. Cell count at that time was 22; slightly positive Nonne and Noguchi; no complaints followed this injection; temperature, 98.4 degrees.

Case 4. Tabes. May 14, 1914. Injected 2.5 milligrams dissolved in 21 cc. of spinal fluid. Within a few hours pain was complained of in the legs and in the chest; frontal headache; temperature, 100 degrees, rising later to 102 degrees. May 27, second injection made of 1.5 milligrams in 18 cc. of spinal fluid. Cell count, 15; Nonne positive; no special complaints following this injection. June 24, 1.5 milligrams were injected, diluted in 15 cc. of spinal fluid, followed by rather severe headache and pains in the legs throughout the day; no rising temperature; no other complaints were reported. July 6, three milligrams were injected, spinal fluid showing a cell count of 17, Nonne slightly positive. This was followed within a few hours by a slight dizziness; temperature, 98.4 degrees. The following day a slight numbness complained of in the lower extremities; no bladder nor rectal disturbances; no dizziness, and on the third day the patient stated that he was feeling fine.

Case 5. Cerebro-spinal lues. First injection June 16, 1914; cell count, 33. At this time three milligrams were injected, diluted in 15 cc. of the patient's spinal fluid. Three hours later patient complained of slight headache; temperature, 99 degrees. Seven hours later pain in the lower extremities and in the abdomen, with slight nausea; no bladder disturbances; no paralysis. Eight hours later shooting pains in the spine, but no headache. June 17, headache and severe pains in the region of the injection; patient could hardly stay in bed. Three hours later temperature 100 degrees, pains in the back and the stomach; no bladder disturbances. Four hours later patient feeling much better; the following day feeling fine.

Case 6. Case of general paresis syphilitic choroiditis and optic atrophy. Spinal puncture made March 27, 1914; cell count, 100; positive Nonne and Noguchi. May 19 three milligrams were injected at 9 a. m., and at 12 m. patient complained of headache and pains in the legs; temperature, 99 degrees; perspiring, face flushed. May 20, 2 a. m., nausea and vomiting; temperature, 100 degrees; 4 a. m., pains in the legs, nausea and vomiting; 8 a. m., feels better. May 21, patient slept well; some pains in the legs; temperature, 98.4 degrees. June 5, memory much improved; no bladder disturbanes; speech improved; eyesight shows considerable improvement. At that time three milligrams were again injected, followed within a few hours by a rather severe headache, but was much improved on the following day. June 15, patient is very noisy and attempts to escape from the hospital. Mentality poor and has remained so.

Case 7. Tabes. Spinal puncture made May 19, 1914. Cell count, 87; positive Nonne and Noguchi; 2.5 milligrams were injected at 9 a. m. Three hours later patient complained of cramplike condition of the leg; temperature, 98.4 degrees. May 19, patient had a rather restless and sleepless night, vomited once and had pain in the legs. Later in the day the pain subsided. May 21, vomited in morning. May 22 the pains had entirely disappeared, but complains of slight weakness in the right leg. May 23, patient is improved and is able to be out of bed. May 29, patient entirely free from pain; no dizziness. June 16, lumbar puncture, cell count, 53; Nonne faintly positive; 3 milligrams were injected, followed by some pain in the arms and limbs; temperature, 102.2 degrees. June 17, still has pains in the legs, but no nausea. Later in the day feels goods; has slight pain in the back of the legs; able to pass urine, but slower than usual. June 19, patient got up to exercise and pains returned for a time, but subsided within two or three hours. July 6, spinal puncture made; 3 milligrams injected; cell count, 50; Nonne slightly positive. This injection was followed by absolutely no complaint of any kind upon the part of the patient. All of the general symptoms show marked improvement.

Case 8. Tabes. Injected June 24, 1914, followed within a few hours by pains in the head; temperature of 99 degrees; face somewhat flushed. June

25, patient slept well; stated he has no pain and felt fine; temperature, 99.5 degrees. No complaints following this record.

Case 9. June 5, 1914. General paresis with primary optic atrophy. Spinal puncture made; shows cell count of 55 per ccm. Nonne strongly positive. Six milligrams were injected, followed in the course of 12 hours by complaint of severe headache, followed by a chill lasting about 40 minutes. Two hours later temperature 102 degrees; patient complained of pains in the legs of a jerking character, with severe headache; three hours later severe headache, but no pains in the legs; nausea and vomiting; temperature, 100.4 degrees. June 8, temperature, 100.8 degrees; unable to be around. June 10, temperature, 99 degrees; no nausea and vomiting. June 12, feels better; does not complain, but he says the eyesight is not so good.

Case 10. Cerebro-spinal lues. Lumbar puncture May 15, 1914; cell count, 217 per ccm. Nonne and Noguchi very positive. May 19, second lumbar puncture made; cell count, 281; 3 milligrams of neosalvarsan were injected, followed by rather severe pains in the legs; temperature, 99 degrees. May 20, temperature, 100 degrees. Still complains of pains in the legs. May 21, temperature, 98 degrees; complains of slight soreness and pains in the legs; general condition as to clinical symptoms very much improved. All subjective symptoms have subsided. June 5 spinal puncture shows a cell count of 66 per ccm. Nonne and Noguchi positive; 3 milligrams injected, with only a complaint of slight pain in the back; no rising temperature. July 6, lumbar puncture showed cell count of 20, Nonne slightly positive, Noguchi negative. Three milligrams were again injected, followed by no complaints whatever; no rise in temperature. Patient generally shows a marked improvement.

CONCLUSIONS.

1. The intraspinal injection of neosalvarsan is followed by no serious results when the technic is properly and carefully carried out,

2. The patient should be instructed to remain in bed in a dorsal position for at least 36 hours following the injection.

3. In cases of cerebrospinal lues and some cases of tabes, good results can be obtained.

4. The danger from severe bladder and rectal disturbances as the result of the injection is not sufficiently great to condemn this method of treatment.

5. We believe when this form of treatment is carried out by proper individuals it will eventually prove one of the practical methods of medication.

6. It is simpler of administration than by the Swift-Ellis method, and by this method the dose is definitely known.

DISCUSSION.

Dr. Grinker: There were three sets of experiments made under my direction and at my invitation. The first was on the Swift-Ellis treatment which we reported to the nerological society. We had five cases subject to the Swift-Ellis treatment and they were given seven injections. We presented only four cases because one had left and those four had all improved subjectively. The improvement was very much like the one that Dr. Hall cited. Summarizing all the work we have done, I agree with those who think that the treatment is still on trial; that, so far, we have seen subjective signs and no cures are recorded, but on the other hand, a great deal of harm may be expected in the unskilled handling of the cases, but I do believe that we should continue. I feel that if you have another 50 or 100 cases it is only then we can give a definite opinion. I take it that the Swift-Ellis has improved cases where we used it and I think the Swift-Ellis method is superior.

CHAIRMAN: We have a committee that is anxiously waiting to report.

## PREVENTION OF SYPHILIS.

DR. LEONARD, Reading: This committee has acted on the following resolution.

WHEREAS, Syphilis is responsible for a large percentage of insanity and mental deficiency, be it

*Resolved*, that:

1. Health departments, municipal and state, should be equipped to make laboratory examinations for venereal diseases.

2. ALL hospitals for the insane should be equipped to make laboratory examinations for venereal diseases.

3. Hospitals and dispensaries for the treatment of venereal diseases should be provided.

4. Physicians should be compelled by law to report cases of venereal diseases as is now done in other contagious diseases.

5. Applicants for marriage should be required to furnish health certificates.

6 .Lectures and bulletins should be offered freely to the public, regarding venereal diseases.

7. Newspapers should be requested to use their best influence to educate the people concerning venereal diseases.

8. Sex hygiene should be taught in the public schools above the grammar grades, to the sexes separately.

(Signed) by the Committee, Drs. Evans, Leonard, Cotton, McCaskey, B. F. Williams, Sterne, Peddicord, Clarke, Lindsay, Davis.

CHAIRMAN: All in favor of the adoption of the resolutions which have just been read, signify by the usual sign, aye; opposed (no response).

CHAIRMAN: Carried unanimously. The report is adopted.

Dr. Sterne: A year ago I made a preliminary re-

port on the Swift-Ellis method in a private communication. A year ago I declined to give a definite opinion upon the value of that method and this year, after having another year's experience, I have had under my supervision probably some three hundred injections upon a number of cases. I am still somewhat—so to speak—on the fence as regards the ultimate result which we can expect to get.

First, in the Swift-Ellis method, I have been unable to convince either in private or hospital service, that one method has shown any advantage over the other. It is essentially important to use freshly distilled warm water to avoid the pain, especially in the lower extremities, after the intraspinous injection. Then await a definite length of time to inject that serum or the spinal fluid. The temperature must be fully 56 C. and in that event we find we do not get reaction. The foot of the bed should be raised after the injection is made. We allow the patient nothing to eat before the injection is made and after the injection, only the lightest diet. We keep patients in bed at least 24 hours and preferably 48. I believe we can safely say that with all our experience it is far too early to come to definite conclusions but that the results thus far claimed are better than we have been able to obtain before, but in addition at least, we make it a point to associate the old methods with the new.

---

## SALVARSAN IN THE TREATMENT OF SYPHILIS.

Wm. Allen Pusey, M. D.
CHICAGO.

The man who has to do with the treatment of syphilis has never had a greater responsibility put upon him than exists in the question of the use of salvarsan in the treatment of his cases of syphilis. The claims for it have been so strong and the sponsors for it of such high authority that it has been no easy task to exercise restraint in giving one's patients the supposed benefits of it; and yet, there are many considerations which make one hesitate at its administration in the heroic way which has been advocated and which raise serious questions concerning the sum total of its usefulness. Although the time that it has been in use is short, compared with that necessary to get any final knowledge of the ultimate value of any means of treatment in a disease so tricky as syphilis, we are already acquiring a fund of knowledge of salvarsan that enables us more satisfactorily to determine its place in the treatment of that disease.

The questions which confront us now in considering salvarsan indicate a different situation from that which we thought we were in when salvarsan was introduced and we had the hope that in it we had an effective remedy for the cure of syphilis. Now the questions are how effective is salvarsan in syphilis? How far can it be substituted for the older means of treatment, and what are the objections to its use? It is no longer *therapia sterilizans magna,* to use one of the striking terms we learned from Ehrlich.

At present the subject of salvarsan in syphilis can be considered from two standpoints: its value as a symptomatic remedy, and its value as a curative agent.

*Symptomatic Action of Salvarsan.* There can be no two opinions as to the specific action of salvarsan upon the active lesions of syphilis. It is a powerful symptomatic remedy. In rapidity of action it surpasses mercury or mercury and iodides in many lesions; in others, it equals or is inferior to these older remedies. In early syphilis it has a quick effect upon the initial lesion, mucous patches, and condylomas. Its action is quick upon mucous-membrane lesions generally. Its effect upon the cutaneous eruptions is not more prompt and not more complete than that of mercury. Upon the severe forms of early syphilides—large pustular eruptions, early gummatous lesions—its action is often strikingly effective. According to wide experience the effect upon the adenopathy of syphilis is surprisingly slight. Upon late gummatous lesions of the skin—apparently less upon gummas of the internal organs and upon bone lesions—the action of salvarsan is usually prompt and effective. It is in extensive and intractable lesions of this sort that it has probably its greatest field of usefulness as a symptomatic remedy; and it is the more promising here because, for the healing of such lesions, moderate doses are sufficient and the use of heroic quantities of the drug are not necessary, as in the attempts at radical cure with it. In the rare cases of severe early or late syphilis, which are not amenable to establish methods of treatment, it undoubtedly is an effective addition to our means of treatment.

Aside from these latter and rare cases there is need to emphasize that salvarsan, as a rule, does nothing in gummatous lesions of syphilis that cannot be done effectively with mercury and the iodides—perhaps done slightly slower, but almost without any of the toxic dangers of salvarsan.

For there is a tendency now to forget the value of the older means of treatment of these lesions. And so we constantly see reference to cases "hopeless by mercurial treatment," "intractable to mercury and iodides" or "malignant." As a matter of fact such cases, in which actual lesions of syphilis are uncontrollable by mercury and the iodides and rational measures, are excessive rarities. The treatment of such lesions by mercury and the iodides is, as a rule, one of the most definite feats of therapeutics.

As to the effect of salvarsan upon the Wassermann, evidence is conflicting. Experience in general is that except in the early primary stage it is not more effective in reversing a positive Wassermann than is mercury; in moderate doses it is less effective than safe vigorous mercurial treatment.

*Curative Use of Salvarsan.* What of salvarsan as a cure for syphilis—the high result that was hoped for when it was introduced? How far has it realized this hope?

In the primary stage, at the appearance of the chancre, the evidence is strong to lead us to hope that with salvarsan much more can be done than has ever been done before to absort syphilis. That is, when the syphilitic patient is seen before the disease has become generalized,while the spirochetal infection is localized around the initial lesion and before the Wassermann has become positive, it is possible in many cases to prevent the development of secondaries and hold the Wassermann negative by immediately instituting and vigorously carrying through a course of salvarsan and mercury treatment. The period of observation of these cases is still short, and success in preventing all early indications of syphilis is not conclusive proof that the patients are free from syphilis; but it is more than we can do with mercury, and it is strong presumptive evidence that the disease has been aborted.

This abortive action of salvarsan in the primary period gives it a very valuable field of usefulness. About 40 per cent of cases of initial lesion, which can be distinguished by the demonstration of the spirochaeta pallida, show a negative Wassermann for one or two weeks after the lesion's appearance. In these cases there is a reasonable prospect that syphilis can be aborted —a prospect that justifies a vigorous attempt with salvarsan. This of course makes the early diagnosis of the initial lesion a matter of great importance.

After this brief stage of promise has passed the prospect of cure rapidly changes. It becomes less promising from week to week, and after secondaries are well established it almost or quite vanishes. That sad conclusion has been forced upon us by the accumulated evidence of recurrences in cases treated in the secondary stage. It has gradually forced the salvarsan advocates from the use of a single massive dose to courses of many repeated doses in combination with the most vigorus mercurial treatment. There the method now rests. In the opinion of salvarsan advocates some early cases can be cured by vigorous treatment. But even they admit that if cure is to be attained it is only by heroic courses of salvarsan—2 to 4 grams of salvarsan in a few weeks—combined with vigorous intramuscular use of mercury. If less than this heroic attempt at cure is made the opinion, even of some salvarsan advocates, is coming around to the view that the drug had better not be used at all. Some have gone even further and do not use it for curative purposes after the Wassermann has become positive.

This position I believe is one which we are forced to by the logic of experience. And this position, quite aside from any hesitation about using the drug on account of its dangers, depends upon one fact—the increased frequency of severe syphilitic relapses, chiefly nervous, after the use of salvarsan. That there is an increased frequency of relapses of syphilis in the form of nervous lesions is now accepted. This is true as well, I believe, of relapses of gummatous lesions in the skin and elsewhere, but attention has been centered upon the nervous lesions because of their seriousness. Attention was early called to the frequency of nervous lesions after salvarsan by Finger, Rille, and others. The fact was bitterly denied by Ehrlich and his school, Benario, with industrious loyalty, going so far as to compile in a book the cases of nerve syphilis in the literature of pre-salvarsan days in order to show that their frequency is not now greater than formerly. But from that position they have been compelled to recede, and now the increased frequency of "neurorecidives" is admitted even by salvarsan enthusiasts. Thus Nichols and Hough, Nichols being one of the earliest and still one of the most enthusiastic salvarsan advocates, say: "The ques-

tion still remains why these relapses are more frequent under treatment with salvarsan than with mercury."

Much difference of opinion has existed as to the reason for these relapses, some attributing them to the direct effect of the arsenic on nervous tissue, Ehrlich's school vigorously maintaining that they are lesions of syphilis. There is little doubt now that the latter view is correct, and in the reason therefor lies the strongest indictment to be made against salvarsan.

To complete the quotation from Nichols and Hough:

Some authors hold that salvarsan damages the nervous system and thus predisposes to a localization of the spirochetes in this region. It seems to us, however, that these relapses can be satisfactorily explained according to Ehrlich's ideas. In a considerable number of cases in the secondary stage the nervous system is infected with or without symptoms. . . . When such a case is treated with salvarsan the great bulk of spirochetes are suddenly destroyed. They are not simply repressed, as is the case under mercury, and the resistance of the body is not gradually stimulated against them. There remain, however, small foci of spirochetes, especially in areas which are less accessible to the circulation, such as are found in the central nervous system. After a time these spirochetes begin to multiply and they meet no resistance such as is afforded by the continuous administration of mercury or by the natural defences of the body, because these defences have not been continuously stimulated by a large number of organisms all over the body. As a result the spirochetes which have remained grow with increased vigor and presently produce symptoms where they are located, in the nervous system.

And as we would expect if this last phrase were stated in the full form logically demanded by the "increased vigor," the spirochetes, growing without the opposition of the usual resistance developed by the infected organism, cause new lesions of severer type than is usual in early syphilis.

Stated in another form this proposition is as follows: Salvarsan destroys the spirochetes except those walled off in inacessible localities; therefore, the body is not stimulated by a general infection to the production of those antisubstances which are its natural defence, and so builds up little or no resistance. Later these isolated foci of spirochetes grow, and because of lack of acquired resistance to them grow with increased vigor, and so produce damaging lesions. Finally their growth spreads beyond the isolated focus or foci and, as after the chancre, infection becomes general, while at the same time no natural defence has been built up. In other words, the patient who is treated vigorously with salvarsan but short of absolute destruction of all the spirochetes has his day of reckoning briefly postponed, but at the price of having to meet it later under adverse conditions.

This is why the view is gaining ground that if the prospects are not good of cure from salvarsan, or if it is not to be given in the vigorous way necessary to have a chance of cure, it had better not be used at all in the early period of syphilis when the patient is building up his natural resistance.

This reasoning of course does not apply against its use as a symptomatic remedy for the treatment of the later lesions, long after the patient's specific immunity has been stimulated and utilized.

What about the so-called "biologic" treatment; the treatment which is controlled by the Wassermann reaction?

*The Wassermann as an Index of Treatment.*

Following the great authority of Neisser, the Wassermann is being widely used as an index of the efficacy and of the necessity for treatment. Neisser's position is this: A positive Wassermann is proof of active syphilis and of the presence of living spirochetes; therefore, a positive Wassermann is an indication for specific treatment. As a corollary of this the efficacy of treatment may be judged by the effect upon the Wassermann. "Conversely a negative reaction, which means the restoration of the serum to its normal state, signifies generally if not complete destruction of the parasites at least the establishment of a condition of equilibrium between the host and the spirochetes, so that the latter assume the character of harmless saprophytes. If any treatment short of complete sterilization is to be of value it must maintain this relationship; hence the Wassermann reaction should be used to control the treatment, as it is usually the most subtle indicator of a disturbance of equilibrium with a tendency to the assumption of pathogenic activity on the part of the spirochetes." This quotation from Browning and McKenzie states well the position of those who make the Wassermann the basis for the so-called "biologic" treatment of syphilis.

It is not established beyond any possible doubt that a positive Wassermann means active syphilis.

This is, however, probably true. All that can with scientific accuracy be said of a positive Wassermann is that it is evidence that the patient has had syphilis—the rest is, in part at least, assumption.

Conversely it is not established that a negative Wassermann means "the establishment of a condition of equilibrium between the host and the spirochetes, so that the latter assume the character of harmless saprophytes." On the contrary, clinical evidence proves beyond doubt that at times with a negative Wassermann the spirochetes may possess their usual virulence. All experience has shown that in 20 per cent to 30 per cent of cases of late active syphilis the spirochetes are showing every evidence of pathogenic activity in spite of negative Wassermann. One may even see, as I have seen, mucous patches teeming with spirochaetae pallidae in late secondary syphilis with the Wassermann negative. So it is not true beyond any possible question that a positive Wassermann means active syphilis, and it is certainly not true that a negative Wassermann means a condition of equilibrium between the spirochetes and the tissues, so that the spirochetes have become harmless saprophytes.

It can be said, however, that the Wassermann reaction in syphilis is not a true specific antibody-antigen reaction. It is established that a specific syphilitic antigen is not necessary to the reaction, and a consideration of all the facts indicates that it is highly probable that the substance in the syphilitic serum that produces the specific Wassermann reaction is not true syphilitic antibody but some undetermined substance. This latter fact is exceedingly important in its practical bearing upon the question of the value of the Wassermann reaction as an index of treatment. For if it were true that the Wassermann reaction is an index of the amount of antibodies produced—in other words, of the immunity which the individual is building up to protect himself—one might well hesitate at using as an index of the efficacy of treatment what was really the index of the individual's acquired resistance to the disease. The subsidence of the Wassermann at the same time with the improvement in the condition of the syphilitic patient is one of the best evidences that it is independent of antibody and that it is a reliable index of the efficacy of treatment.

So far we are upon reasonably safe ground: the subsidence and disappearance of a positive Wassermann is an evidence of improvement in the condition of a syphilitic, and as such is an evidence in favor of the efficacy of the treatment which he is undergoing. But it is only one piece of evidence; it is not conclusive and compelling evidence that all is well; its value may be completely offset by the persistence of hyperplastic glands, by the persistence of cachexia, or, as at times may happen, the Wassermann-unheralded appearance of mucous patches or a late secondary eruption or a gumma. Its proper value then is as one symptom. It is, however, one symptom of great practical importance because it may be elicited when all others have disappeared. But as an index of the condition of a syphilitic patient or of the effect of treatment it is not entitled to preponderating consideration. It is desirable to see it disappear, as it is any other symptom of syphilis; but it is also desirable that adenopathy should subside, that mucous and cutaneous and systemic symptom should disappear, that weight should be maintained, and that the patient's feeling of well-being should be high. If some of these evidences of the disease persist or recur we are in no position to say that the patient is better off than he would be with a persistent or recurrent positive Wassermann.

To repeat then, a negative Wassermann is an evidence of the betterment of syphilis, but it is only one form of evidence, and in weighing its importance as an index of the efficacy of treatment it is entitled to weight only in its relation to all the facts in the case.

The fact that the Wassermann is not all-important is no reason why it should not be taken at frequent intervals during treatment and given reasonable weight. And there is good reason to believe that the sooner it becomes negative and the more constantly and longer it remains negative the better is the prospect of the case, as it is with a similar course of all other symptoms of syphilis.

How long must the Wassermann remain negative before we may proclaim a patient cured? We are in no position to answer that question by any positive statement. There is now a very strong pretension that undertakes to claim a cure of syphilis after the Wassermann has remained

persistently negative for a certain length of time. There is some justification for this in the aborative treatment of syphilis, when, after the chancre, neither a positive Wassermann nor any other evidence of syphilis appears. Omitting, however, these cases the clinical history of syphilis compels us to believe that we cannot give a positive assurance that the disease has gone never to return. We can give assurance after several years of a negative Wassermann, of probable immunity, as we can after several years of symptomatic freedom.

How long then shall the Wassermann be taken? If one is to be logical, as long as one's clinical judgment indicates that the syphilitic should be watched; and in my opinion that means at intervals for life. Bayly, himself a pathologist, considering the question from the theoretical standpoint, gives under what seems from the phrasing of the last half of the sentence to be logical compulsion a good answer to this question: "A single negative reaction obtained with a serum of a patient undergoing treatment by mercury or salvarsan means little but that the patient is reacting to such treatment. A series of negative results taken at intervals of three or six months after all treatment has been given up is necessary before the patient be regarded as cured [here he seems to lose heart—W. A. P.], and even then, until twenty years have passed, we cannot be absolutely certain that the disease is completely and permanently obliterated." In other words, we are no more in position now than we have been in the past to ignore the possibility of future relapses in our luetic cases.

I think I cannot better close this brief analysis than by a quotation from a statement on the present situation in the management of syphilis from Brocq, perhaps the first of present French syphilographers:

Whatever be the power of the new arms which have lately been placed at our disposal for the treatment of pox, the practitioner must clearly understand that the antique rules of therapeusis have not undergone any change. He must grasp the idea that his duty is first and foremost to place the organism in the best possible state to resist and thus minimize the virulence of the infection; that by a well-ordained hygiene he may reduce to a minimum the secondary manifestations and the tertiary liabilities.—Brocq.

DISCUSSION.

Dr. G. Wilse Robinson: *Mr. Chairman, Ladies and Gentlemen:* It is with pleasure that I welcome the opportunity of discussing this most important subject. In my opinion the auto sero-salvarsan treatment of conditions of the central nervous system secondary to syphilis, marks a distinctive advance in neurological therapy.

A few months ago practitioners of medicine considered tabes and G. P. I. as inevitably progressive as the march of time, and we were justified in our opinion. Because the then known and used therapy exercised very little influence upon these conditions. But now we can offer to these hitherto doomed unfortunates at least a ray of hope.

I believe my experience with this treatment has been sufficiently extensive to justify me in expressing an opinion of its merit; and also in asserting that the idea of its reputed dangers has developed upon faulty technique. I have never used the intra-thecal injection of salvarsan or neo-salvarsan as I believe this method of treatment to be dangerous.

My method in brief is as follows: I use an intravenous injection of neo-salvarsan once a week, until I have given from eight to twelve injections. The water which I use for making my solution I have recently distilled and auto-claved. Dirty water is responsible for many of the accidents and complications following this operation. Forty to sixty minutes after giving my intra-venous injection I withdraw about 60 c.c. of blood. As soon as the blood coagulates, the clot is separated from the walls of the glass container and is set away in a refrigerator until the following day. By this time a sufficient amount of serum has separated away. I use from 12 to 15 c.c. serum. This is heated thirty minutes at 56 degrees centigrade. To this I add an equal quantity of normal sterile saline, giving me a 50 per cent. solution of salvarsanized serum. I withdraw some cerebro-spinal fluid before making my injection, but I rarely withdraw as much fluid as I inject.

After making an injection I advise the patient to lie down for a few hours. If I have any disagreeable symptoms following either the intra-venous injection or the intra-thecal injection, I immediately try to ascertain wherein the technique has been faulty. I do not believe there should be such symptoms.

I have to date made approximately 150 injections, having treated about 18 patients. The major portion of my patients have been paretics. All of the paretics to whom I have given this treatment have improved. Three are clinically well, one has relapsed, and the others are improving. In my experience the tabetics respond more promptly than do the paretics. All of the tabetic symptoms are influenced favorably. One patient with the most distressing attack of gastric-crises of months' duration was entirely relieved after the second injection. Another case of tabes had a painful stump for seven years. He had had many operations upon the stump which gave no relief. After the first injection all pain in the stump ceased.

The obvious conclusion was that the pains were tabetic pains and did not belong to the stump per se.

In conclusion permit me to emphasize my statement that the danger is not in the treatment, but in the carelessness of the physician. This treatment has given me results which I never dreamed of getting with any other. I am confident that many cases of tabes and G. P. I. can be entirely cured.

CHAIRMAN: I want to say that we owe a great deal of gratitude to our esteemed secretary for getting up this program, I feel we have been very successful in our meeting of the Chicago Medical Society, and we thank you visitors for taking such an active part in our program and we feel much good will come out of it.

The meeting is adjourned. We hope we will see you all again next year.

---

## SURGERY IN HOSPITALS FOR THE INSANE.*

E. M. GREEN, M. D.
MILLEDGEVILLE, GA.

Up to a comparatively recent period the surgical work done in hospitals for the insane was confined chiefly to minor operations and to an occasional emergency operation of greater severity, the latter being usually performed by surgeons from without the institutions. Medical cases have always received careful treatment, but as a rule surgical indications have been neglected.

In many hospitals, at the present day, the importance of this line of work is fully appreciated and one or more surgeons find places upon the consulting staff of each. In these institutions the members of the medical staff are allowed to perform only the minor operations while those of graver character are done by the consulting surgeon or by a member of the staff under his supervision. As a result of such conditions a lack of interest in surgical work is noticeable; and by reason of this failure to obtain actual experience in the technique of the more difficult operations and to assume full responsibility for the patients' after treatment, few competent surgeons are found upon the staffs of hospitals for the insane.

Any measure which serves to keep aroused interest in a department of medicine, which is at times somewhat monotonous in its necessary routine, increases the efficiency of medical officers in every branch of their work, and leads them to be constantly on the outlook for conditions which would otherwise pass unnoticed. Many insane patients, by reason of their mental disorder, suffer in silence from conditions which might easily be remedied by surgical measures. For example, it not rarely happens that a strangulated hernia is discovered only after the constriction has existed for so long a time that gangrene of the intestine has resulted, and this without complaint from the demented patient whose condition is recognized only when his illness becomes evident to superficial observers.

On the staff of every hospital some members will be found for whom surgery possesses no attraction, but the impetus which they receive from those interested in this work causes them to recognize surgical indications more readily than they otherwise would do.

The spirit of emulation which is aroused by opportunities for doing real surgical work is a healthy one, and adds greatly to the interest of hospital physicians in their whole service. They are constantly on the outlook for cases that can be benefited by operation, and consequently their patients are more carefully examined and observed. When opportunity presents to do merely the trivial operations and to superintend the after treatment of cases operated upon by others, a certain degree of mortification and dissatisfaction is felt, even though unexpressed, at the evident acceptance of the physicians' lack of ability to do work of consequence.

The statement has been repeatedly made that the insane do not bear surgical procedures well. This is in direct conflict with our experience, although it is true that the after treatment of these cases is often complicated by the patients' non-cooperation and occasionally by their active opposition. However, in the insane, we do not find that the operation is looked forward to with dread nor that its outcome occasions the anxiety which so often unfavorably influences operative cases among the sane.

A number of years ago, following the publication of a series of operations upon the pelvic organs of insane females, which operations were followed by the mental restoration of the patients, quite a degree of enthusiasm was aroused in certain quarters regarding the curative effects of such measures. Many insane females suffered

*Read at a meeting of alienists and neurologists held under the auspices of the Chicago Medical Society, June 23-25, 1913.

mutilation before the results confirmed the opinion that such operations were worthless in so far as the cure of mental disorders was concerned.

That insane persons, who suffer from diseased organs or from other conditions in which surgical measures promise relief, are as much entitled to the alleviation of pain or discomfort which these measures yield as are those who are not insane, admits of no discussion. At the present day, the consensus of opinion is that wherever abnormal conditions are present and would in a sane person receive surgical treatment because of the distressing train of symptoms which they entail, the same operations and for the same reasons should be granted to insane persons.

In considering the reports which we still occasionally see of mental restoration following operative measures, it should be remembered that in some forms of insanity recovery is to be expected and would naturally follow even in the absence of relief from irritating conditions, and that when in such cases recovery does follow operation, to the latter is attributed a measure of credit to which it is not entitled. Other forms of insanity are from the outset incurable, and in these forms, of course, no curative results can follow operation, though the physical condition may be improved and a considerable degree of comfort can be attained,

If surgeons could be induced to secure the opinion of a psychiatrist before holding out to the relatives of an insane person the hope of cure as the result of surgical measures, much disappointment would be avoided, and many patients would be spared unnecessary suffering. It is not uncommon to have patients suffering from incurable mental disorders brought to hospitals for the insane after having undergone operations which were suggested to them, or to their relatives, as offering promise of mental restoration.

For some years past it has been the policy of the Georgia State Sanitarium to encourage certain members of its staff to qualify themselves to cope with the usual surgical conditions encountered among its patients. In consequence of this policy there has been a gradual growth of interest in surgical work until at present no patient fails to receive surgical attention because of the absence of competent men to furnish it. Our object is not to restore the insane individual to his normal mental capacity by means of surgical operations, but merely to relieve diseased conditions. With the relief which these measures bring, incidentally there occasionally follows improvement or cure of the mental disorder.

To convey an idea of the amount of surgical work performed by the members of the staff of the Georgia State Sanitarium, it will be necessary to offer the following table which shows the more important operations from Jan. 1, 1910, to May 1, 1913. While their number and variety would be regarded as quite meagre if reported by a general hospital, they make a fairly creditable showing when consideration is given to the fact that the surgical work forms only a small portion of the activities of a hospital for the insane.

In addition to the operations listed in this table, 1,471 minor surgical procedures were carried out during the same interval of time; this number does not include the reduction and fixation of fractures, dilatation of urethral strictures, etc.

SURGICAL OPERATIONS FROM JANUARY 1, 1910, TO MAY 1, 1913.

| | |
|---|---|
| *Surgery of the Head—* | |
| Adenoidectomy | 1 |
| Adenoidectomy with tonsillotomy | 1 |
| Tonsillotomy | 2 |
| Harelip (double) | 1 |
| Tumor of scalp, excision | 5 |
| Epithelioma of face, excision | 5 |
| Enucleation of eye | 7 |
| Tumor of orbit, excision | 1 |
| Trephine of skull | 8 |
| Plastic repair of lip | 1 |
| *Surgery of the Neck—* | |
| Cervical glands, excision | 3 |
| Thyroidectomy | 3 |
| *Surgery of the Thorax—* | |
| Amputation of breast | 3 |
| Osteotomy (osteomyelitis of clavicle) | 2 |
| Tumor of breast, excision | 1 |
| *Surgery of Abdominal and Pelvic Organs—* | |
| Appendectomy | 34 |
| Appendectomy with oophorectomy | 3 |
| Appendectomy, salpingo-oophorectomy, dilatation and curettage | 1 |
| Abdominal section with drainage | 1 |
| Cholecystotomy | 3 |
| Cholecystostomy | 1 |
| Circumcision | 35 |
| Circumcision with excision of varicose veins | 1 |
| Exploratory laparotomy | 5 |
| Excision of portion of colon with closure of perforations | 1 |
| Enterostomy (foreign bodies) | 2 |
| Fistulotomy | 2 |
| Hemorrhoidectomy | 27 |
| Hemorrhoidectomy with fistulotomy | 1 |
| Herniotomy, inguinal | 31 |
| Herniotomy, inguinal, double | 5 |
| Herniotomy, umbilical | 2 |
| Herniotomy, femoral | 1 |
| Hydrocele (radical cure) | 4 |
| Orchidectomy | 3 |
| Posterior urethrotomy | 1 |
| Resection of caecum | 1 |
| Secondary laparotomy | 1 |
| Varicocele, excision of veins | 4 |
| Amputation of prolapsed rectum | 3 |
| *Surgery of the Female Pelvic Organs—* | |
| Dilatation and curettage of uterus | 35 |
| Cystotomy, supra-pubic | 1 |
| Hysterectomy, abdominal | 22 |

| | |
|---|---|
| Hysterectomy, vaginal | 1 |
| Oophorectomy | 5 |
| Oophorectomy with suspension of uterus | 1 |
| Oophorectomy with removal of fibroids | 1 |
| Ovarian cyst, removal | 2 |
| Perineorrhaphy | 8 |
| Perineorrhaphy with colporrhaphy | 1 |
| Perineorrhaphy with trachelorrhaphy | 2 |
| Salpingo-oophorectomy | 3 |
| Salpingo-oophorectomy, double | 10 |
| Salpingo-oophorectomy, removal of fibroids and broad ligament cyst | 1 |
| Salpingo-oophorectomy with dilatation and curettage | 1 |
| Suspension of uterus | 4 |
| Suspension, perineorrhaphy, trachelorrhaphy, oophorectomy | 1 |
| Trachelorrhaphy | 4 |
| Trachelorrhaphy with suspension of uterus | 1 |
| Vesico-vaginal fistula closed | 1 |
| *Surgery of the Upper Extremity—* | |
| Amputation of finger | 9 |
| Tumor of wrist, excision | 1 |
| Tumor of forearm, excision | 1 |
| Skin graft | 6 |
| *Surgery of the Lower Extremity—* | |
| Amputation of foot | 1 |
| Amputation of toe | 5 |
| Tumor of ankle, excision | 1 |
| Tumor of buttock, excision | 1 |
| Excision of varicose veins | 2 |
| Excision of long saphenous vein | 5 |
| Total | 356 |

Though nine patients died following operation, the greater number of deaths were unavoidable, and would have occurred even in the most experienced surgical hands, as the following tabulation of operation and cause of death shows:

| Operation— | Cause of death— |
|---|---|
| Amputation of foot | Acute cardiac dilatation (occurring 2 hours after operation). |
| Appendectomy | Dysentery. |
| Salpingo-oophorectomy | Pleurisy with retroperitoneal abscess. |
| Oophorectomy | Intestinal paralysis. |
| Herniotomy, inguinal | Acute cystitis. |
| Cholecystotomy | Septic peritonitis. |
| Herniotomy, femoral | Intestinal gangrene. |
| Trephine | Compound, comminuted fracture of skull (patient never conscious after injury). |
| Herniotomy, inguinal, double | Acute nephritis. |

The number of recoveries and improvements following the operations included in the table may be disappointing to those who see in surgical measures hope for the restoration of a large number of the insane. It should be remembered, however, that these operations were performed only for the relief of conditions which were dangerous to life, or which caused pain and distress to the patient. Eleven patients were restored apparently to their normal mental condition; twenty-two showed marked improvement, The terms "recovery" and "improvement" refer to the mental condition only, as almost every patient was benefited more or less, physically, by these measures, and by them the lives of many were preserved. In only one instance was the subsequent condition of the patient unfavorably influenced by the operation. This was the case of a man in whom a constant clonic spasm of the arm caused extreme mental and physical distress. The brain was exposed in the region of the arm centers, but no cause for the spasm was discovered. Following the operation the arm became paralyzed, and in so far the condition of the patient was made worse.

The forms of insanity from which the patients who recovered suffered were, for the most part, those in which recovery would be expected in any event, and the doubt still remains whether the operation determined recovery or recovery occurred despite the operation.

PSYCHOSES OF PATIENTS WHO RECOVERED.

| | |
|---|---|
| Alcoholic psychosis | 1 |
| Allied to dementia præcox | 1 |
| Drug psychosis | 2 |
| Infective-exhaustive and autotoxic psychosis | 3 |
| Manic-depressive psychosis | 2 |
| Unclassified | 2 |
| | 11 |

PSYCHOSES OF PATIENTS WHO IMPROVED.

| | |
|---|---|
| Alcoholic psychosis | 1 |
| Allied to dementia præcox | 1 |
| Dementia præcox | 3 |
| Depression undifferentiated | 1 |
| Drug psychosis | 1 |
| Epileptic psychosis | 1 |
| Infective-exhaustive and autotoxiv psychosis | 2 |
| Manic-depressive psychosis | 11 |
| Psychosis accompanying pellagra | 1 |
| | 22 |

The largest percentage of recoveries from psychoses are found in the manic-depressive, the alcoholic, the toxic and the infective-exhaustive groups. That this expectation was borne out in our patients who recovered and improved is shown by the above tabulations in which are seen that of the eleven recoveries, eight belonged to one of these groups, while of the twenty-two improved, fifteen were so classified.

Below is given in tabulated form the operations which were followed by recovery or improvement, with the number of patients restored and improved and the number of such operations performed.

| Operation— | R. | I. | No. of Operations. |
|---|---|---|---|
| Appendectomy | 1 | .. | 34 |
| Appendectomy, salpingo-oophorectomy | 1 | .. | 3 |
| Appendectomy, salpingo-oophorectomy, dilatation and curettage | .. | 1 | 1 |
| Dilatation and curettage of uterus | 1 | 4 | 35 |
| Enucleation | 1 | .. | 7 |
| Fistulotomy | 1 | .. | 3 |
| Hemorrhoidectomy | 1 | 1 | 27 |
| Herniotomy | .. | 3 | 39 |
| Hysterectomy | 1 | 2 | 23 |
| Oophorectomy with suspension of uterus | .. | 1 | 1 |
| Ovarian cyst, removed | .. | 1 | 2 |
| Perineorrhaphy | .. | 2 | 9 |
| Perineorrhaphy with trachelorrhaphy | 1 | .. | 3 |
| Salpingo-oophorectomy | 2 | 3 | 13 |
| Salpingo-oophorectomy, suspension, dilatation and curettage | .. | 1 | 1 |
| Suspension of uterus | 1 | 1 | 4 |
| Thyroidectomy | .. | 2 | 3 |

R = restored. I = improved.

SUMMARY.

1. Surgery is a legitimate work for the asylum physician and should be entrusted to him.

2, It supplies an added interest to duties which are too liable to become monotonous.

3. The general efficiency of the whole staff will be raised by the recognition of their ability to cope with any surgical emergency.

4. The insane bear surgical procedures well, and are as much entitled as are the sane to the relief which such measures confer.

5. Operations upon the insane should be performed with the same objects in view as when done upon the sane.

6. The hope of curing insanity by operation is rarely justified.

7. Mental recovery after operation depends rather upon the form of psychosis encountered than upon the operation itself.

---

## PRESENILE PSYCHOSIS.*

E. Z. Levitin, M. D.
PEORIA, ILL.

The classification of mental diseases has varied from time to time and, of late years, we have attempted to adhere to Kraepelin's outline. Ziehn attempted a classification upon the basis of whether the disease was of an affective type or one in the intellectual field. Dementia praecox can be mainly credited to Kraepelin, as it was he who developed this particular psychosis and blazoned the pathway for future investigators, who have regarded his original statements with earnestness and have not in any way tried to eliminate the main facts of the various sub-types.

One wonders frequently whether psychiatry has really made any well defined advances since ancient time. In the days of Hippocrates and Galen, the period of intellectual height during which Plato, Aristotle and Socrates lived, one was able to find reference to mental alienation, with an occasional attempt at classification. The old outline of mania, melancholia, senile states and epilepsy was kept in mind in those days, and the large group of adolescent cases were still not studied and no attempt made to differentiate between the deteriorated and non-deteriorated psychoses.

It is true that phrenology had been practised a number of centuries, but true cerebral localization was unheard of until the middle of the 19th century, when Broca and Fritsch were able to demonstrate before the Neurological Association definite results obtained from laboratory experimentation. This awakened general interest and laboratory experiments brought forth points of value, at the same time observation of cases of aphasia of various types, followed in many instances by necropsies, were able to demonstrate the true value of the knowledge of localization.

Modern psychiatry brings us up to the time of three men, Wernicke, Ziehn and Kraepelin These men have done an enormous amount ol work and have put psychiatry upon a working basis. It is true that there are many things about insanity that are still hidden in mystery, but at least there is no fear shown in attempting to unravel the etiology of these conditions, thereby unveiling the possibility of true organic pathology being the basis of the so-called functional diseases. Psychiatry is still in its infancy; even the best of psychiatrists differ amongst themselves upon essential points. Some investigators insist that the nervous element of the brain undergoes certain changes, even during the ordinary process of cerebral functionating. The other school considers the neurones as conductors, and the activity of the brain as a state of conductivity. This theory seems to me to be like some of the old metaphysical theories, an attempt to define processes that are of an unknown character, as those impossible of definition and metaphorically akin to electricity.

Within the last few years such men as Kraepelin, Altzheimer and others have accumulated a series of cases showing certain symptoms that in their general course and type simulated to a great extent the senile states, though the average age of the individual afflicted was in the forties and early fifties. These patients did not show the typical land markings of an involutional melancholia, or the confusional state of an infective exhaustive psychosis, but rather those of a true senile psychosis. Because of the resemblance to the latter condition, the several investigators have attempted to classify such cases under the title of *pre-senile states.*

Altzheimer has described several cases, characterized by distinct pathology consisting of plaque formation in certain parts of the brain, especially the prefrontal and hippocompal gyri. At the same time arteriosclerosis is present in-

*Read at a meeting of alienists and neurologists held under the auspices of the Chicago Medical Society, June 25, 1913.

volving the minute vessels of the brain, but no distinct changes evident in the larger cerebral vessels. The main clinical symptoms were those of an aphasia and a paraphasia, accompanied with a disorientation and apprehension, impairment of memory, with some occasional depression. Delusions and hallucinations were present, characterized by their irrelevancy and constant changes. What especially seemed to be definite in many of these cases, was the peculiar conduct of the patient as if she had suddenly been robbed of certain parts of her brain, resulting in a peculiar hesitancy and groping for words and thoughts. When one, upon necropsy, finds these localized plaques, it may be understood how this peculiar punching out of thoughts and words may occur.

A point of interest to note is that most of these cases occur in women. Recently Kraepelin has written concerning the pre-senile states and with clearness and exactness has attempted to bring out certain types of this phychosis. He has shown that there are certain cases that resemble the depressed type of the manic depressive and still, because of their incoherency, their inaccessibility at times, their varied delusions and hallucinations, one cannot justifiably group them as a true type of manic depressive. In taking up the late catatonias, he has demonstrated the presence of the typical symptoms of this condition, at the same time showing that the course of this disease differs in certain essential points from the true catatonic type of dementia praecox. Here the possibility of latent dementia praecox springing up under the stress of presenile changes can be brought forth, but, in my mind, the only way in which one can clear the mystery of adolescent insanity, as we termed this psychosis years ago, is not to call everything dementia praecox, but try to account for diseases occurring in the presenium by reasons founded upon tangible possibilities occurring during this age.

(Kraepelin has, as well, described a series of cases showing paranoic tendencies, which at first were ill defined, but later became fixed, and absorbed the entire life of the individual, rendering congenial home life an impossibility, These symptoms are accompanied with signs of deterioration and symptoms of persistant apprehension are constantly present.)

One would naturally ask the question, what peculiar stress, or change, was occurring at this particular stage of life resulting in such profound psychic changes in women to the practical exclusion of men. When one remembers that Shakespeare in describing the seven ages of man laid special stress upon the male sex, and we wonder what has occurred within recent times to shift the psychic pathology from man to woman. There is without doubt a condition existing in modern society in all the walks of life that has brought woman in contact with problems that in many instances she has not been able to overcome. It must not be forgotten that the progress made by woman within the last 50 years is as great in her special fields as the progress made by communities and nations, as, for example, the Japanese.

When one remembers that the gradual evolutional state is necessary to a certain degree, it can be understood why given certain predisposing factors, such as familial traits and taints, occurrences in early adolescence of a psychic nature, various incidents in the marital experience, difficulties of overcoming economic situations, the latter associated with an environment of unpleasant nature, with all of the above and much more, it is not hard to understand why, during certain decades, the female sex reacts more profoundly and displays a more acute course than the male does.

During the past three years there have been admitted to the Peoria State Hospital nine cases, which were provisionally classified as pre-senile psychosis; seven of these were women, two men. I say, provisionally, because the classification, even at the present time, is rather indefinite. The knowledge of the symptomatology of these types, as well, is rather indistinct. Observation has shown that these patients pursued an acute course, during which time, in the depressed type, delusions and hallucinations were prominent. A distinct clouding of consciousness was present and a decided memory defect evident. In the paranoid type, the ideas of infidelity in women in the middle forties were especially pronounced.

In one case the woman was the mother of several children and went as far as to suspect her husband of immoral practices with various neighboring women and even with one of her daughters. It was impossible to attempt to reason with her. Her memory showed a decided defect, there was a condition

of apprehension and anxiety present, which was evidenced by fear of examination, fear of the nurses and physicians, general restlessnes and a decided disorientation.

Another case, patient 48 years of age, who appears about 60 years, has an arteriosclerosis, which is more than one would expect at her age; was admitted in a condition of clouding, psychomotor restlesness, constant hallucinations and condition of apprehension. This patient showed a certain amount of distractibility, but the amount could not be ascertained because of her extreme clouding. Her memory showed decided defects, though it was impossible to state positively whether these defects were those of aphasia or amnesia. This patient is under observation at the present time and continues in her clouded state, is disoriented, rambling in her talk, possibly reacting to hallucinations, apparently having various delusions, is running down physically in spite of all that is done for her.

An interesting case that has been under observation for some time is a female patient, 47 years of ago, who has the following history: Shortly before admission to the hospital, the patient sustained a shock, being present at the death of a favorite niece, who was fatally burned in an explosion. Within a short time after this occurrence she became absorbed in thought, would sit or stand in one place staring into vacancy for lengthy periods at a time, talked of seeing a vision of a child at night, etc. She suddenly became excited, talked constantly concerning religious matters, became disoriented for time, place and person, presented a clouding of consciousness, had distinct visual hallucinations and, about this time, began to show typical symptoms of catatonia. She would have periods of mutism, would indulge in stereotypic movements, showed a negativistic trend, would secrete and hide herself in all manner of peculiar places. Her memory a that time showed a decided defect. She would have periods of violence and was untidy and destructive. This condition has existed for about 16 months. She does not show the typical emotional indifference of the dementia praecox; on the contrary she shows an instability of mood. Her attention and retention are defective, but in all probability this is partly due to her clouding and disorientation. This case was first diagnosed as a catatonic dementia praecox, but, on representation, was classified as belonging to the catatonic group of presenile psychosis.

Thus one can go on in detail describing these cases, but the well-known picture as elaborately depicted by Kraepelin we have all read. I believe it would be more to the point to try to find out why such psychic states occur at this particular period of life especially in women. Why do we suddenly have in the fifth decade of life an acute psychosis during which we have frequently a panorama of ideas flashing through the patient's mind, extreme anxiety, clouding, etc.? One wonders frequently how such myriads of hallucinations and delusions can in some cases rapidly replace themselves in a short period of time. The few post-mortems made, show profound destruction of nerve elements as well as plaque formation.

We all know that arteriosclerosis has its inception in early adolescence. It is true that its progress at first is at first microscopic, but still its presence is sure. The depth of biology and histo-pathology in their relation to mental disease have not been fathomed up to the present day. Why should not individuals show premature changes in the vascular system, characterized by local arteriofibrosis in certain areas of the brain; which, if occurring in the higher centers would result in pictures resembling the psychosis under discussion, ..mpirical research work it is true is not the scientific method of obtaining the truth, but when such men as Ehrlich and others have succeeded by pursuing such methods and arriving at certain conclusions, why cannot possibilities be followed up and proven either right or wrong.

The ductless glands have been blamed and held responsible for almost every condition imaginable, but since such glands as the thyroid do assist in retaining the equilibrium of the patient, why cannot it be possible that there is some disturbance of this system resulting in arterial changes producing this psychosis? When the Rockefeller Institute can, in a period of a few years, open up our eyes to the true etiology and method of transmission of a disease that was considered of mysterious origin only three years ago, why cannot systematized research work attempt to arrive at the etiology of this psychosis curtailing the lives of individuals who have been normal and of value to the community up to the onset of this disease?

The study of blood pressure is of interest in this condition; some cases have shown a high blood pressure and some the reverse; usually low blood pressure has been the predominating feature.

One would ask again what produced this disturbance in blood pressure; is it secondary to the localized cerebral arterial fibrosis or is it the primary etiological factor in the production of this cerebral histopathology? The possibility

of endogenous toxins produced in the circulatory system affecting the nervous tissue and at the same time producing permanent changes in other structures, may as well be considered. Auto-intoxication is a term that has been ridiculed of late years. Still, when one excludes alcohol and syphilis, I am firmly convinced that the products elaborated within the body are more deleterious to the various systems than any extraneous toxemias. When one remembers that fatigue toxins are constantly being manufactured in the body, that they have a deleterious effect upon the human economy one can then realize that with the approach of middle life, with its tendencies for general involution, you will have a decrease in function of the various systems followed by an extra accumulation of these toxins producing certain pathological symptoms.

In the late catatonias, one notices that there is no dissociation present between the intellectual field and the emotional field. Ordinarily this relationship is well balanced. The anxious state, as well, is a predominant feature in the late catatonias associated with a dread of future events, apprehension in contact with the outer world, all this resulting in a withdrawal within one's self, producing what to us is a meaningless attitude, conduct or behavior.

Last, but not least, we have a type of this psychosis which is entirely confined to the female sex occurring during the early involutional period it is true, but not always accompanied by the physical signs of sexual involution. These patients have paranoid delusions, not accompanied by any evident deterioration, no exaltation of mood shown or depression shown. The judgment and reasoning is as well as one would wish, though when the patient is questioned concerning her false ideas, she shows absolutely no insight into her state, or realization of the absurdity of her delusions. These delusions are usually of jealousy, suspicion and of an erotic character. Later we have apprehension, loss of memory-deterioration. Very little is known of this particular type, but one would naturally attempt to make a psychological study of the underlying inner causes bringing forth at this particular decade such ideas of jealousy as are so commonly present. It is true that the involutional period is the main background, but this is not the essential substrata present, resulting in the gradual production of senseless suspicion and jealousies. The gradual realization that the termination of her sexual life is approaching, no doubt, in many cases makes the woman's mood one of doubt and anxiety and distrust. Constant brooding over this fact accompanied by the symptoms of the menopause gradually brings forth suspicions of jealousy and infidelity. In many cases the patient realizes that these are without foundation and senseless and still these ideas, as baseless as they are, rapidly change, assuming a different coloring from day to day. Every action or look on the part of the one she cares for is misconstrued and elaborated frequently until a delusion, which is anything but well thought out, makes one think of a deteriorated mind, when to one's surprise, analysis of the general mental attitude of the patient reveals no symptoms of dementia. I believe many of these cases could be treated with a fair amount of success if the patient could be put under constant observation during the early phases of this psychosis.

It is true that hereditary influences have a great deal to do with the susceptibility of the individual to influences of environment and association. At the same time one cannot lay too much stress on the influence of economical factors and domestic occurrences upon a patient of the neurotic temperament. The treatment of presenile states is one of prevention rather than cure. It is easier to treat prophylactically because the hereditary influences are not at all as powerful in these conditions as in dementia praecox or the true manic depressive psychoses. It is because of the fact that the stress of daily life has increased in past years with the ever present sapping of the energies of women during mature life that localization of disturbances of equilibrium are found present in the nervous system. The nervous system of woman responds more rapidly to stimuli than that of man, and, therefore, the progressive fatigability is greater in that proportion.

How can we overcome this tendency to early senility? What can be done to counteract the physiological demands put upon man and woman? The present life is one of high tension and constant endeavor, the age of competition has reached its highest state and has invaded not only the lives of men, but has permeated the at-

mosphere of domestic life. Woman has demands made upon her that were non-existent years ago. Some are able to bear the burden, others cannot and as a result the most highly developed system of the body, the nervous system, is the first one that weakens. Many an ambition has become futile as the approach of the presenium became evident and, instead of a conservation of physical and mental faculties, there is a yielding of the same under the stress of environmental stimuli, with a resultant gradual development of a psychosis.

These patients enter state hospitals in an active delirium very frequently; are anxious, depressed and have various paranoid ideas. It needs the greatest amount of tact to be able to receive these patients and make them feel at home and understand that treatment and not restraint is the reason for their admission. It needs kindness of manner and deftness of handling, to gently convince these patients that no harm will come to them. In many of these cases, treatment in a single room with a special nurse is essential. Under the constant trained eye of a competent nurse, the various phobias, anxious states, hallucinations and delusions can be kept partially under control by eradicating to their utmost stimuli from without and supplanting the same with reinforcement tending to arouse the patient from her trend of thought and bring about a stream of thought into a channel characterized by the absence of anxious thoughts and their resulting delusions and hallucinations.

Presenility and modern life go hand in hand, and its presence will increase in proportion to the exigencies taxing the members of modern society. From this viewpoint, it is of great importance that members of the medical profession should take more interest in the life of the Nation, and this can only be accomplished by representation in Legislatures and Congress. Then we can alleviate the conditoins predisposing to the development of early senility.

---

## A CASE OF DEMENTIA PRAECOX.

WALTER LEWIS TREADWAY,
Assistant Surgeon, U. S. P. H. S.
ELLIS ISLAND, N. Y.

The student of mental disorders is no longer satisfied with a crude classification into mania, melancholia and dementia nor with a more elaborate but purely symptomological classification. The adoption of the purely symptomological classification, with possibly some modifications, is by now almost universal and although a description of the various symptoms is important, it becomes of more and more importance to study each individual symptom more closely. Such a classification permits of a grouping of mental disorders according to their outcome.

Kraepelin and many others have arrived at a classification based upon the study of a great number of cases presenting points in common. By this statistical method it makes no difference what the nature of the special case may be so long as it fulfills certain conditions as regards the emotional status, morbid perceptions, delusions, mannerisms, etc.

The increasing knowledge of biologic psychology leads to the conclusion that attention must be paid to the actual case and that a more general description does not suffice. The works of Freud, Bleuler, Jung, Riklin, Brill and others show how incomplete is the information gained from the older methods of study, compared with the results obtained from the psychoanalytic methods.

Regarding the application of the word association test a few words may not be amiss. Those who hear or read for the first time of the psychoanalytic method may broadly be divided into two classes, namely, those whose interest is aroused though their intellect may be puzzled, and those who from the outset are repelled and adopt a hostile attitude. The line between the two classes is not a very sharp one, for I think it is true that no one has ultimately adopted the theory and practice of phychanalysis without first having to overcome various difficulties and obstacles in his own mind.

To some the conclusions reached by Freud and his disciples seem so grotesquely unlikely, and the objections to their methods so obvious, that they do not feel it worth while to pursue the subject any further. Others, equally conscious of the objections that immediately rise in their minds, are sufficiently open minded or tolerant to think it possible that perhaps their difficulties are due to their insufficient grasp of the matter, and that adequate explanation may exist which they will find if they pursue their inquiry.

I venture to believe that the attitude of many men in the medical service of the state hospitals, towards Freud's method of investigation and word association test, is very much what my own was previous to a few years ago. I had been repelled by the assertions of investigators, yet I gave no adequate study to the subject until recently, and have since applied the method to a few cases, one of which I here present.

Case: A white woman, aged 36 years, whose father is said to have asthma, and one paternal cousin is insane. She is thought to have developed as other children and been much as other girls. When seventeen years of age she began teaching a country school. Some three or four years later she took a position as bookkeeper, holding a fairly responsible position, remaining at one place until five years ago, at which time she was married.

Her mother and father are said have been very domineering and wanted to take the greater part of her salary. It is also said that they contrived various means to obtain money from her. This is thought to have made the patient suspicious of everyone and mistrust those about her. She herself stated that she had never any "real true friends," never confided in her mother, and made no confidants, which suggests that she is not an open personality.

When twenty-four years of age she was engaged to be married. The engagement was terminated abruptly, her fiance marrying another soon afterwards. Following this she worried a great deal, lost considerable sleep and was quite dissatisfied. When thirty years of age she met her present husband and was married one year later. She stated that she loved her husband until a few days prior to her marriage, and had she "given it more thought things might have been different."

Her husband's occupation took him away from home for a week at a time, during which time she often thought of her former lover and contrasted her position with what it might have been. In a measure the coming of her child two years after marriage satisfied her, but she has never understood her husband and referred to him as acting strangely. A few days prior to admission to the hospital her husband came home in the evening, and, contrary to the usual custom, no supper was ready. She offered no explanation and none was asked. Her child asked for something to eat, telling her he was hungry, and she told him to ask his father. Later he wanted to go to bed, when she again referred him to his father. This attitude was never before assumed by her. She paid little attention to her husband or child, but sat rocking. Suddenly she ran out of doors saying, "Farewell, farewell, my child." She ran to a neighbor's house and sat on his front porch. She then returned to her own porch, remaining outside. Her actions were so strange that the husband called the neighbor. She told the neighbor that her husband had tied a tin can to their dog's tail and sent the dog to talk to her instead of coming to talk to her himself. During the next few days she laid in bed most of the time, took no interest in the welfare of the child and said that he had been poisoned because he was so heavy, and that her husband had doped him by wiping the child's face with a white handkerchief. Her commitment and journey to the institution elicited no comment or expression of surprise from her.

Except for being constipated no abnormal physical findings were demonstrated.

She was well oriented, recognized those about her, the character of the institution, and gave the date. She spoke of the strange actions of her husband prior to her marriage, but more particularly a few days before her admission. She said that everyone's actions seemed strange, evidencing considerable perplexity.

Previous to coming to the hospital her friends called her by telephone, which she understood as meaning that she was mentally well. Since admission she has commented upon a patient wearing a sash with two streamers, which meant "If you pull one it is right, if you pull the other it is wrong." She stated, there was an intention to antagonize in everything asked of her. She was inclined to find fault with the accommodations and to be displeased with her surroundings. A slight anxiety was noted but no particular press of activity was in evidence. She had at times the appearance of being depressed, especially during the mornings, this being only transitory and observed only occasionally. One was therefore inclined to believe that she presented no definite exaggeration of mood. She was anxious to go home and at times threatened to take the nurse's keys from her, although she never offered violence.

Her stream of mental activity showed many inexplicable features, ideas of reference, stereotypes of phrase and general looseness of association. She saw hidden meanings in the actions of the physician and patients and frequently spoke of the institution as being a "Board of Trade," as it changes frequently, and then spoke of her neighbor, who is engaged in the grain business. When asked if this neighbor is a friend of the family, she replied by asking if it was "a friend of the wife's?" and seemed to resent the question quite strongly. This man is the one who was called in the night of her queer actions at home.

She was not interested in any kind of work, did not assist with any of the ward work, spent her time idly, either lying on the bed or sitting about. At first an attempt to get her to make baskets was met with some success, though with resistance on her part, but later she seemed to lose interest in this. Repeated attempts to find her some occupation were met with disfavor. She did not write to her mother for some time, and did not inquire about her child, but stated that there were times when she felt quite anxious about him. He is now with her mother, and she suggested that his chances to become a great man were doubtful. When asked if she thought he

would become less lovable as time goes on she said it would be an awful thing for a mother to say. The feeling toward her child was not entirely clear, but suggested indifference. She stated that there were days when she felt indifferent, but did not seem to care, and again she was anxious about her home. The visits of her husband were met with considerable disapproval on her part, saying that they did her no good; she did not care to have him visit her, and she is unwilling to return home and live under the same conditions as formerly.

The classification of this case was dementia praecox. The word association test was applied in order to learn something of the types of reaction in this case and also to endeavor to discover the mode of development of her odd and peculiar reactions. Two hundreds words were given to the patient, but one hundred are sufficient for an illustration of the principal complexes. The main characteristics of the associations are the long reaction times and faulty reproductions with some rather odd and peculiar responses. The time in general was long, the arithmetical mean being 4.6 seconds, the probable mean being 3.9 seconds. 43 per cent were above 3.9 seconds. 45 per cent were correctly reproduced, while the remainder were faulty in reproduction or showed a long reaction time, suggesting that a repressed complex had been touched.

Many reactions showed the so-called definition type not unlike that observed in defectives. It is possible that to some extent the patient understood the words as a test of intelligence, and hence there was a tendency to give definitions.

An examination of the associations shows that there are several complexes more or less closely connected with one another and all more or less erotic. 11 per cent have to deal with dissatisfaction with domestic relations, 8 per cent erotic events prior to marriage, in which thoughts of another man figure prominently, and 12 per cent are of the sensual erotic character.

The word association test was given to the patient, and her reactions, the time and also her reproductions were recorded. Her reactions were again gone over and the patient asked to explain them by the free association method as far as cooperation would permit.

In an article of this character I realize how tiresome and tedious it would be for one to listen to a long recitation as the patient gives it. It will, therefore, be inadvisable to present all the material gained from her but I will endeavor to show by examples that dissatisfaction with her husband and married life at least seem an important interest in her mind and therefore may have a strong bearing on her psychosis. She refers to her husband as acting strangely particularly a few days prior to admission and even a few days before her marriage. It would seem that she has for some time been preparing herself for such a crisis and being unable to cope with the situation as a compromise adopted the odd and peculiar reactions which led to her commitment.

1. Head leader—2.4"—3".

Refers to a wish to have someone lead her, or to have a leader of the family. She said later that she was "The business end of the contract." When spoken to regarding the reaction she referred to the "head of the government," and "that there should be more than one leader." She adds, "Seems that insanity is on the increase, and seems there should be some central figure between insanity and spunk." She afterwards explains "spunk" as temper; referring particularly to herself. She probably refers to the inability of her husband to understand her, and again, a wish that some central figure might be able to do so. She asks the physician if he is a Catholic, and comments on her brother being a Catholic, and wants to know if he employed the physician, and adds that she "does not want to be hired to do anything." This reaction then apparently expresses a desire on her part to have some leader, or "head of the government," for whom she would do things of her own desire, rather than be compelled to do things for convention's sake, for she adds, "Can't do as you want to, though, can you? Not always. Well, I have to consider other people." Her husband said that the patient has always had a quick temper, and would ofttimes make life almost unbearable by her constant nagging and fault finding, but at times he would do the things which he deemed right without consulting her. She frequently speaks of Catholics and Masons, and associated Knights of Columbus, K. C. with having "kept company" (K. C. again) with a certain young man who was a Mason.

2. Green; not ripe; not matured, probably will be better—2.4", not mature, 5".

In talking to her of the reaction she recalls it as immature, but it suggested human beings being green, and probably again refers to her husband being unable to understand her. "Some people are foolish, don't consider, don't know how, probably," after which she gives a long sigh. Some of our green people are good people, but should not be at the head of the government. They might lead up. I think some of our green people sometimes do some very great things. This obviously expresses the same dissatisfaction.

8. To plow; to turn over the ground—3"—3.5".

To her it means turning over, tearing up the ground,

and refers to a song she knew during her early life, the words of which, "The world is all ours, and we will turn back." After urging her to tell more, she says, "To a place where we first started." This refers to her wish to turn back to some particular time in life, and hesitatingly she adds, "I would not want to do that." It is quite probable that she wishes to turn back, and rather suddenly puts it from her. This has then a definite suggestion of compensation for the dissatisfaction and relates this complex closely to the second mentioned.

12. To carry; to pack—10". Pack—2.2".

To her it suggested a burden, "The burdens of life. Mine has been a hard one." An excellent illustration of her dissatisfaction.

14. To dance; to skip about—4"—3".

This "skipping about gracefully," and she says that she likes a graceful person, and thinks that graceful people are not always the best, "but they are those who can act and look well under circumstances, who can smooth things over. I know I am not graceful. I don't act angry but provoked sometimes." She here uses the word graceful in the sense of a good adjustment under trying circumstances, referring to herself and her conduct, but means I am as good as anyone, even if my actions have not looked well under certain circumstances.

24. Blue (failure)—6". Color—1.8"—2.

Recalled her disposition on general feeling, after which she gives a long sigh, and speaks of, dark blue being dressy, and after considerable pause and hesitation, as though encountering some emotional difficulty, says that pale blue brings to her mind "a shade that has gone through a great deal and has faded." It is to be remembered that her hair is quite gray, that people have told her she looks old, hence, "I feel blue and have gone through a good deal."

84. False—5"—3".

She thinks of things that happened that should not have happened, and that she knows things that she would have been a great deal better not to have known, and prefers to have been less wise." People presume that my charity is all for my people." "Not but that I respect the government and all that. I think everyone should do what they could for the government—in other words, I think charity begins at home." Recalls how a patient who attended church wore a girdle with two streamers, meaning that "strings were tied to this" so that if you pulled one string it meant right and the other wrong, and immediately comments upon the place being a lack of love. That "no one lonesome here"—and that her past life is false. This relates to her home life, which was not as she wished, but that she should be more "charitable" toward her husband, but how can "I" when it is all wrong and that love does not exist, hence "my" whole life is false.

The above examples are sufficient to illustrate how she is dissatisfied with her married life and the social status in which she finds herself. The refusal to get the usual meal for her husband and son, indifference with which she treated them, her distaste for her husband's visits and the unwillingness to return home and live under the same conditions, become entirely clear when her dissatisfaction is grasped. Her attempt to leave him suddenly by running away can similarly be explained.

The thought that her child was poisoned because "he felt so heavy" and because "her husband had wiped the child's face with a handkerchief," unaccompanied by the emotion usually associated with such thoughts, leads on to believe that she hereby expressed the wish that he might be poisoned, for by his death she would be in a better position to gain a separation from her husband and possibly greater conjugal happiness.

As further evidence of this when it was suggested that the child might become less lovable as time goes on she comments that it would be an awful thing for a mother to say, and makes no further remarks regarding it, nor does she display the emotion one would expect.

The utter indifference toward her child, the refusal to attend on him, the failure to enquire about him may all be explained upon this basis.

The sudden leaving of her home, the running to her neighbors was an attempt at separation. The expression "Farewell, farewell, my child" shows that he was a factor in keeping her from an attempt at separation before this. The telling of her neighbor that her husband had tied a tin can to the dog's tail and sent the dog to talk to her instead of coming to talk to her himself is difficult to explain. As a matter of fact the husband had some time previously tied a can to the dog's tail; she may regard this in the light of her husband's desire to be free from her.

In the next group of associations I will endeavor to show that various incidents of her past life seem rather prominent in her thoughts and intimately associated with the preceding group.

It is to be regretted that more has not been obtained. It would be well before presenting the illustration to state that at the time of meeting the fiance who disappointed her, she was at a picnic. He took her and her sister's child for a row in a boat.

7. Ship; sailing vessel—5.4". Vessel—3.6".

This reaction results "going along smoothly," and she thinks of her mother and her father, who were shipwrecked. She also refers to a certain outing, in

which things seems to have "gone smoothly" with certain individuals and cautions the examiner not to take names, and to keep it a secret. A wish that things might have gone as then.

11. Table (failure)—15". Ah! Table —6".

She refers to an operating table, and tells of having visited her sweetheart, who was then studying medicine, and who showed her an operating room. She then refers to other journeys, and adds that the doctor (her sweetheart) is in things a great deal.

35. Sail; swim—5". To sail—3.2".

To her it recalled "go along smoothly." She does not think that she goes along smoothly and does not believe that many persons do. When told that her answer is swim, she says that "one may swim along smoothly." It may be now for pleasure (if things had gone smoothly), it may be for heroic deeds "I should have gone along smoothly" (probably referring to her failure in grasping happiness then, and how she meets them as heroic deeds.)

23. Journey; distance traveled—3". Travel—2".

Little is obtained from the patient regarding it, as she says, "Oh, I don't tell all my thoughts. You know as children we were taught to be seen and not heard, and I never was a person to talk much." This is an example of her attitude and gives one a general idea as to the difficulties encountered in attempting to analyze a case of this sort. She speaks of there being a change in time which to her means things are not progressing. "East is earlier than West." She does not explain this, and one may attempt to supply many versions of it. She speaks, however, of a trip through the East, but nothing definitely is obtained.

38. To ride; not to walk—5"—2.6".

She refers to riding of different kinds—horse and buggy, automobile and train, and, "For water, I thoroughly enjoy riding on water." As she has never lived near any stream, it seems striking that she should lay such stress upon the riding on water. It becomes intelligible when one considers reactions No. 7, No. 22, No. 29 and No. 35, and the associations with her former sweetheart.

57. To meet; come together—3.6"—2".

She encounters considerable emotion, after which she says, "coming together." It seems to belong to the same complex with No. 54, No. 55, and refers to the previous meetings when all went "sailing smoothly."

22. To swim; sail—3". Sail—2".

Belongs to the same group as No. 7, going along smoothly, etc.

55. Woods; well, a body of trees—3.4". A body of trees—3".

Here speaks of a creek which ran through the woods near where she lived. Recalled again the water scenes, the first indicator being No. 7.

The patient being dissatisfied with her husband, unhappy and discontented, compensates herself by thinking of her former lover, builds castles in the air, imagines what "might have been" had she married some one else. The picnic scene comes in frequently and stands as a symbol for this imagined happiness.

All of these are closely associated with and seem to overlap the associations dealing with domestic dissatisfaction.

The association method in this case has shown that it affords one a better understanding of the patient. We readily see that this patient has failed to meet the conditions of her married life, is disappointed with her husband, and the social status in which she finds herself. Beneath her daily activities there is a variety of internal dissensions quite incompatible with that feeling of satisfaction which goes with good adjustment. The patient has been unable to readjust her hopes and wishes to accord with the actual facts of life, but has resorted to reverie as a means of compensation. There is no practical effort to alter the condition by separating from her husband, or som other means. Instead she becomes querulous and fault finding and suddenly turns upon the situation an attitude of indifference, busying herself with castles in the air of "what might have been," high flowing phantasies expressed by "head of government" and such like terms.

I am greatly indebted to Dr. H. Douglas Singer, Director of the State Psychopathic Institute, for kindly assistance.

The patient returned home, not to live with her husband but with her mother. Her mental condition was stationary.

---

A dip and a guess, perhaps given with a silent prayer, is about all some soda fountain employes give to the matter of cleaning spoons and glasses. Don't buy of dirty people.

---

Don't use a common cigar cutter when you clip the end of your cigar. It is possible to transfer sputum from the man who precedes you. He, quite likely, moistens the cigar in his mouth, then clips it in the common cutter. If you follow him, in the same manner, you are taking chances.

---

If your butcher expectorates on the floor of his shop, tolerates flies, puts his thumb in his mouth and moistens it each time he reaches for paper to wrap your meats, it is high time you stopped trading with him. If a butcher is not clean about his meats, he does not deserve your patronage.

# ILLINOIS MEDICAL JOURNAL

Published monthly by The Illinois State Medical Society, under the direction of the Publication Committee of the Council.


Copyrighted, 1914, by Henry G. Ohls, M. D.


GENERAL OFFICERS 1914-15

PRESIDENT.....ALBERT L. BRITTIN, Athens
PRESIDENT-ELECT.....CHARLES W. LILLIE, E. St. Louis
FIRST VICE-PRESIDENT.....OTTO T. FREER, Chicago
SECOND VICE-PRESIDENT.....EVERETT J. BROWN, Decatur
TREASURER.....A. J. MARKLEY, Belvidere
SECRETARY.....W. H. GILMORE, Mt. Vernon
(Ex-officio Clerk of the Council)

THE COUNCIL

District 1—EMIL WINDMUELLER, Woodstock.
District 2.—EDWIN S. GILLESPIE, Wenona.
District 3.—CLYDE D. PENCE, Chicago.
District 4.—AUGUST H. ARP, Moline.
District 5.—C. S. NELSON, Springfield.
District 6.—C. D. CENTER, Quincy
District 7.—C. F. BURKHARDT, Effingham.
District 8.—E. B. COOLEY, Danville.
District 9.—FRANK C. SIBLEY, Carmi.

CLYDE D. PENCE, *Chairman*, 3338 Ogden Avenue.



Send all Communications relating to Advertisements and mailing list to Dr. Clyde D. Pence, Editor, 3338 Ogden Avenue.
Membership correspondence to Dr. W. H. Gilmore, Mt. Vernon, Ill.
Copy for publication to Dr. Henry G. Ohls, *Managing Editor*, 927 Lawrence Avenue, Chicago.

OCTOBER, 1914.


## Editorials

### THE ALIENISTS AND NEUROLOGISTS.

The enormous number of the mental deficients in our state institutions and at large, is so appalling, that it behooves us to stop to reflect, to think seriously and profoundly of what the outcome will be.

The Alienists and Neurologists of the United States have made a start in the right direction, realizing that results can only be obtained by concerted effort. To this end they have held three annual meetings, under the auspices of the Chicago Medical Society. The last of these meetings, held July 13-17, 1914, inclusive, was a truly national affair. About thirty states sent official representatives to attend this congress. One would have to be present to appreciate the interest and spirit of the assembly.

The community should be protected by the state against this menace of degeneracy. Millions are spent for care and cure, nothing for prevention. In other lines of medical effort, prevention rather than cure is the first step in the right direction. In order to find a preventive, one must learn the causes. The papers read at this meeting discuss every phase of mental diseases, and may be considered the latest and most up-to-date contribution to these subjects.

The ILLINOIS MEDICAL JOURNAL, realizing the importance of the work of this medical congress, has given over the entire October Issue to the publication of the papers read together with the discussions. Our readers are very fortunate in this way to obtain the complete proceedings of the meeting in one volume, and it is a rare addition to the doctor's library.

### ACTIONS FOR CIVIL MALPRACTICE.

*Second Article.*


ROBERT J. FOLONIE, LL. B.

CHICAGO.


The increased number of unwarrantable actions for malpractice within recent years is, in part, due to causes beyond the control of the physician.

Such causes are more or less sporadic and present new and varying factors from time to time.

Prominent among such causes at the present time is the trend of legislation of a paternalistic type. In Illinois the act providing for compensation to injured employees was followed so immediately by a large number of baseless malpractice claims as to preclude any inference that it was a mere coincidence.

It is doubtful that there was opportunity in so limited a period for these suits to have been outgrowth of a feeling of lessened responsibility on the part of the working man, unless it may be assumed that the previous agitation had created such a spirit before it was put into the form of legislative enactment. It is more likely that these claims were precipitated through the loss of practice of lawyers accustomed to handling suits for personal injury against employers, who, in a state of panic, finding their means of livelihood abruptly taken away, scampered for other pastures, no matter how scanty their verdure. Of more importance to the actively practicing physician is the ultimate result after the sense of newness has worn off.

The beneficent effect of legislation of the type indicated within reasonable limits is generally conceded by students of sociology. Those upon whom its attendant but inescapable results fall must bear it with patience.

Almost every social revolution bears heavily on members of the learned professions, and these increasing evils we must bear with as much fortitude as possible, until eventually the practice of medicine will become primarily a profession under governmental control.

There can be no doubt that the selection of the physician to attend the injured employee without the consent of the servant and quite frequently at the instance of the Casualty Co. insuring the employer, does not create the feeling of trust which is felt when the physician is of the patient's own selection.

The lessening of the personal equation without any corresponding regulation by the state leaves the physician the subject of suspicion and often of antogonism which must prove a great hindrance in effecting a cure and also increasing the likelihood of claims of malpractice.

A large number of suits have already been instituted against physicians (some at the instigation of employers or their insurers) and suits commenced by the employee against the employer, claiming malpractice of the physician designated by the latter.

It is regrettable to record that in many cases where compensation is sought from the employer by the employee, the defense of malpractice is interposed, not in good faith, but as a club to secure reduction of the physician's bill or to cause it to be withdrawn.

It is to be borne in mind as a practical procedure, that under the Illinois Compensation Act, the employer is not responsible for hospital bills and physician's bills in excess of $200.00. This amount is the limit of jurisdiction of a justice of the peace, and no cross demands can there be filed in large amount to frighten the physician.

It has been a frequent experience of physicians suing for bills in other courts, that upon presentation of a claim for a comparatively small amount, is met with a counter-claim of $10,000 and even more, thereby precipatating a suit which most often has no legitimate basis in law or fact, but which cause the physician so much concern as to prove more than an irritation.

So many actions for malpractice are precipitated through a desire of the patient or person responsible for the bill to escape its payment, or reduce the amount to be paid, that a separate article will be devoted to the question of charges against clients and their relation to the making of claims for civil malpractice.

---

## THE NEO-MALTHUSIANS.

A book which should prove of interest in connection with the papers read at the meeting of Alienists and Neurologists is the small volume by C. V. Drysdale, "The Small Family System, Is It Injurious or Immoral?" Published by B. W. Huebsch, New York, 1914.

The author prefaces his study of this subject by defining his method as follows: 1. Ascertaining the opinions of medical authorities and moralists; 2. Considering the conduct in this respect of these authorities themselves; 3. Studying the course of the health and morality of the community as the limitation of families has become more general.

To clear the field, like a good general, he notes that the opponents of family restriction generally confuse the use of preventive measures with ecbolics—to which, of course, he is as much opposed as anyone.

He endorses the dictum of Dr. W. J. Robinson that the three most important measures for the improvement of the human race are: 1. Teaching the people the proper means of the prevention of conception, so that people may only have as many children as they can afford to have, and have them when they want to have them; 2. Demanding a certificate of health for a marriage license; 3. Sterilization of all degenerates, imbeciles and vicious criminals.

The "moral restraint" advocated by certain clergymen he dismisses with the criticism that the clergy, as a class, do not practice what they preach in this respect and calls attention to the almost universal small family of the clergy as well as physicians now as compared with former times.

A. Newsholme, the great English authority on health and vital statistics, is quoted as follows: "Little advance can be expected in *morality* until the producing of large families is looked upon in the same light as drunkenness or any other physical excess."

Bertillon, the French authority on health statistics, deplored the low birth-rate of France, but with singular inconsistency said that the few cantons which maintained a high birth-rate were

sunk in poverty and debauchery, and that the infant death-rate was enormous. Bertillon, moreover, said that the greatest decency and the lowest rate of illegitimacy are found where the birth-rate is lowest.

The author's main argument rests on a study of the birth and death-rates of numerous countries which show a uniformly high general and infant death-rate when the birth-rate is high, so that the net increase of population is uniformly greater with a lower birth-rate and its accompanying low death-rate.

Australia, and especially New Zealand, where the use of preventive measures is openly advocated, or at least not opposed by the authorities, have the lowest death-rates of all. Ontario, on the contrary, has had an actual increase in the birth-rate since 1876, when the rate began to decline in almost every other country, but in spite of this increase, the population has not increased on account of the greater death-rate.

The author quotes from a review of Mr. Roosevelt that "the rate of natural increase in New Zealand is actually lower than in Great Britain, and has tended steadily to decrease." But Dr. Drysdale affirms that the excess of births over deaths is nearly double that of Great Britain and has also been growing steadily of late years, and he predicts that the death-rate, which has fallen from 22 to 13.3 per 1,000, since the birth-rate began to decline, will fall to 10 by the year 1921, if the birth-rate falls to 20 per 1,000 as it appears likely to do. When that time is reached it will mean that *there is practically no premature death from actual want of the necessities of life,* or, in other words, that poverty in its worst sense is abolished. It is equally certain that if the educated classes of the community realized their duty in this matter, and would help in bringing about restriction of families in the places where it is most required, the death-rate could be brought down to 10 per 1,000 *within five years.* Yet during these five years there would probably be a greater increase of population than at present, since we should be checking the supply of ineffectives rather than that of effectives.

In a word, the author argues that the millenium with its absence of degeneracy, crime, disease and immorality, will only come with the universal adoption of the "Small Family System."

## PROGRAM SOUTHERN ILLINOIS MEDICAL ASSOCIATION.

FORTIETH ANNUAL MEETING. MT. VERNON, ILL. NOVEMBER 5 AND 6, 1914.

All sessions will be held in the First Methodist Church, Main and Twelfth Streets.

C. W. Lillie, president, E. St. Louis; W. E. Lingle, first vice-president, Cobden; T. H. D. Griffitts, second vice-president, Springfield; A. B. Capel, secretary, Shawneetown; J. W. Armstrong, treasurer, Centralia.

A cordial invitation and hearty welcome is extended to all by the Jefferson County Medical Society.

*First Day. Forenoon Session. 10.30 a. m.*

Calling meeting to order, by President Dr. C. W. Lillie, E St. Louis.

Address of welcome, by Dr. J. H. Mitchell, President of the Jefferson County Medical Society.

Response by President C. W. Lillie.

Reading minutes of the 39th annual meeting.

Report of committees.

Appointment of committees.

*First Day. Afternoon Session.*

SCIENTIFIC PROGRAM.

1. Pneumonia. W. A. Brandon, Carbondale.
2. The Relation of Tubercular Infections to Gynecological Affections. A. J. Butner, Harrisburg.
3. A Plea for a Small Incision in Abdominal Surgery. R. F. Stanton, E. St. Louis.
4. Some Peculiarities of Typhoid, With Report of Cases. I. A. Foster, State Sanitary Inspector, New Haven, Ill.
5. Head Injuries. H. C. Mitchell, Carbondale.
6. Reminiscence of Twenty Years' Country Practice. What Will the Future Be? W. E. Lingle, Cobden.
7. Club Foot. Illustrated With Lantern Slides. E. L. Cooley, St. Louis, Mo.
8. Lacerated Perinaeums and Their Treatment. Robt. E. Wilson, St. Louis, Mo.
9. The Duty of the Physician in All Contagious Diseases. J. J. Hassett, Member State Board of Health, McLeansboro.
10. Functional Stomach Disturbances. F. Buckmaster, Effingham.
11. Comparison Between Ideal and Actual Obstetrics in Country Practice. E. H. Lane, E. St. Louis.

*Evening Session. 7.30.*

Calling Meeting to Order.

Music.

Invocation. Rev. C. C. Hall, Mt. Vernon.

President's Address. "Relation of the Doctor to the Public." C. W. Lillie, E. St. Louis.

Music.

The Causes of "Catching Cold." A. M. Corwin, Chicago.

Immediately after this session a smoker will be given by the Jefferson County Medical Society at the Elk's Hall in honor to Drs. Frank M. Agnew, John McLean, James I. Hale and Geo. S. Rainey. The first three are charter members of this society, the

only ones living. Dr. Rainey has been an active member since the second meeting of the society. Everyone will be "a jolly good fellow" at this entertainment.

*Second Day. Morning Session.*

12. The Conservation of Hearing. Illustrated. E. E. Edmondson, Mt. Vernon.
13. Pathologic Conditions Whose Origin May Be Traced to the Tonsils and Adenoids, as the Primary Foci. C. F. Burkhardt, Effingham.
14. Needs of Medical Legislation. J. A. Womack, State Senator, Equality.
15. The Relation of Adenoids to Mental Deficiency. A. M. Corwin, Chicago.
16. The Prevention of Insanity. E. W. Feigenbaum, Edwardsville.
17. Some Methods That Have Reduced the Mortality of Prostatectomy. Edwin Walker, Evansville, Indiana.
18. Effects of Goitre and Results of Removal on the Circulatory System. E. P. Sloan, Bloomington.
19. Treatment of Empyema. J. L. Wiggins, E. St. Louis.
20. Intestinal Stassis. Olney A. Ambrose, St. Louis, Mo.
21. Treatment of Gonorrhea and Some of Its Complications. Floyd Stewart, St. Louis, Mo.
22. A Blood Picture Diagnosis. P. B. Rabeneck, Nashville.
23. Ectopic Gestation. With Report of Cases. Andy Hall, Mt. Vernon.
24. Laboratory Aids in Diagnosis of Diseases of the Nervous System. D. S. Booth, St. Louis, Mo.

*Second Day. Afternoon Session.*

1. Reports of the Secretary and Treasurer.
2. Election of Officers.
3. Selection of Meeting Place for 1915.
4. Presentations of Resolutions.
5. Formal and Informal Discussion and Action.
6. Adjournment.

Papers read at this meeting are limited to fifteen minutes in delivery, except by consent, and ten minutes allowed each speaker in discussion.

Papers are considered the property of the Association and a copy should be handed the Secretary for publication.

Reports of the Board of Censors on Applicants may be received at any time at the pleasure of the President and action taken on same.

Absence of an esayist at the time his paper is called places his paper last on the program for that day, but this order may be changed by vote of the Association. By special arrangement the time for papers may be changed by mutual consent of those on the program. This, however, is left with those whose time might conflict with that desired by some other member.

---

Now is the time when the pesky flies are most anxious to get into the warmth and comfort of your home. Keep them out and swat them hard.

## HOW MEASLES SPREADS.

All medical men know that measles is highly contagious during the pre-eruptive or catarrhal stage. They also know that the early symptoms are those attending the onset of a severe cold. Here is a little story taken from the reports of the U. S. Public Health Service for Aug. 14, 1914, which illustrates how the disease spreads:

A Kansas farmer went to Kansas City with a car load of live stock. Nine days later he had a "bad cold." He went from store to store in the little town where he lives, telling everybody what a terrible cold he had. On the third day after his return home the eruption occurred and his physician tacked up a measles sign on the house. But the farmer had been quarantined too late. The mischief had been done. Two weeks later 28 of his friends who had listened to his "bad-cold" stories had come down with measles. Inside of another two weeks, 28 other cases; and two weeks later 30 more, making 86 in all, a fair-sized epidemic for a small town, from the farmer's one case of "bad cold."

But this is not quite the end of the story. One of the first crop of 24 cases at A., visited at the home of a friend in the city of B. The friend, not knowing his child had been exposed, permitted it to attend school. In due course it "broke out" with measles, and from this case the disease spread to 43 other families, with a total of 90 cases in that town. A visitor from the city of C. visited in the town fo A., came back to C., and was the source of 100 cases there. From C. the epidemic spread to D., where there were 30 cases, making in all a total of over 300 cases originating with the farmer who had "such a terrible cold."

The moral is that if the man had stayed at home and taken care of his "cold," as he should have done, hundreds of dollars in loss of time and wages and demoralization of school work in four different towns would have been averted. The writer in the Public Health *Bulletin*, in closing his account of the epidemic above described, makes this pertinent observation: "Which pays best in the community: the restriction of one individual in spite of his yells for personal liberty and medical freedom, etc., or the loss of time and money and the suffering of several hundred persons?"

---

Just now there are some would-be agitators who are terming the talk about the value of fresh air as only a fad. All very good. But if the agitation for fresh air is only a fad, what have these fault-finders to say as to the bad air and its effect on the health and comfort of those who are compelled to breath it? In other words, might we ask, what is there faddish about insisting that our indoor conditions be made, as nearly as possible, as good as those obtaining out of doors under sun and sky.

---

Overeating does not always satisfy the appetite. Moral, don't stuff, eat enough and no more.

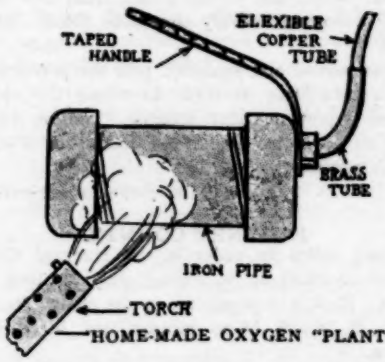
## Auto Sparks and Kicks

### HOME-MADE OXYGEN PLANT DECARBONIZES CYLINDERS.

**Cheaply Made Generator That Makes Oxygen from Cheap Chemicals—How the Device Is Constructed and Operated.**

The chief requisite in the process of decarbonizing motor cylinders with oxygen is, of course, a supply of the gas; and as oxygen is readily produced by the application of heat to chlorate of potash, which is cheap and can be obtained from any druggist, anyone can make his own oxygen generator with little trouble and little expense.

The "generator," which is shown complete in the accompanying illustration, consists of a short length of ordinary wrought iron pipe, 1¼ inches in diameter, threaded at both ends and fitted with




two caps; one of the caps is drilled and tapped for a length of stout brass pipe. Into the outer end of the brass pipe is soldered a length of annealed copper tubing. The other iron cap is left intact. A handle may be attached in any convenient way; the illustration shows a piece of strap iron with a hole in one end to slip over the brass pipe, a nut holding it in position. A winding of tape or asbestos may be added.

The chemicals required for a small charge are two ounces of chlorate of potash and a tablespoonful of manganese dioxide, the purpose of the latter being to stimulate the decomposition of the chlorate of potash. The proportions need not be exactly adhered to. The two are thoroughly mixed and put into the generator through the back cap. The application of a blow-torch flame to the iron pipe will soon heat the chemicals sufficiently to produce a flow of oxygen through the copper tubing, which should be of the proper length to reach into the cylinder, of course.

In the presence of the oxygen the carbon is easily ignited with a match, and it will continue to burn until it is all consumed. The heat should not be too intense, and it should be as steady as possible to ensure a steady flow of the gas. The chlorate of potash should be kept carefully out of contact with any other substance when not being used.

#### CAUTION.

Never attempt to burn carbon out of the cylinders until the gasoline has been shut off between the gas tank and the carburetor, so as to prevent the fire from passing through the supply pipe into the gasoline storage tank.—*Motor World.*

### CEMENT GARAGES.

We are in receipt of several requests for practical data on constructing cement garages, cement floors exterior decorations, etc., we will endeavor in forthcoming issues of the JOURNAL to give as many practical suggestions along the line indicated as the limited space devoted for this purpose will permit.

#### CEMENT FLOOR FILLER.

20 lbs. boiled linseed oil.
40 lbs. dry white lead.
40 lbs. Portland cement.

Thin with turpentine or mineral turpentine to work freely with brush.

#### CEMENT FINISH—EXTERIOR USE.

60 lbs. Gilder's whiting.
30 lbs. Kaolin.
4 lbs. powdered hydrated lime.
9 lbs. powdered casein.

Mix thoroughly.

Keep in sealed packages until wanted for use. For colors, tint as desired with lime and alkali proof colors; mix with water, preferably hot, to the right consistency to brush out properly. Let stand one-half hour or longer before using.

# Society Proceedings

## ADAMS COUNTY

*Annual Outing, August 10, 1914.*

Instead of holding a regular business meeting August 10, the Adams County Medical Society had their annual outing at Big Lake Hunting and Fishing Club on Monday, August 17. About thirty physicians were in attendance.

The feature of the day was an excellent dinner, served about 1 p. m. Everything tasted just right, and the place was very quiet until about 3 o'clock. In spite of the extreme heat, the medics played a good game of baseball, but it was impossible to reach a decision as to which side was victorious. Everybody had a fine time and much credit is due the committee which had charge of the affair. Drs. Center, Irwin and Pittman were given a vote of thanks and the hope was expressed that they would be members of the entertainment committee next year.

*Regular Meeting, September 14, 1914.*

Adams County Medical Society met in regular monthly session on Monday, September 14, at the parlors of the Hotel Newcomb. Meeting was attended by about twenty members. The guest of the society on this occasion was Dr. Frank P. Norbury, alienist board of administration of Springfield, Ill., who addressed the members on the subject of "Exhaustion Psychoses."

The doctor presented a very interesting paper, one showing ability, much thought and careful planning. He spoke at length on the various phases of exhaustion, also giving diagnosis and treatment; told his personal observation of various cases and the results from different methods of treatment.

The paper was thoroughly discussed and many expressed their satisfaction and appreciation.

Before adjourning a vote of thanks was given to Dr. Norbury for his kindness in coming and also for his excellent paper, and the wish voiced by all that he might visit the society again in the near future.

ELIZABETH B. BALL, Secretary.

## WINNEBAGO COUNTY

The Winnebago County Medical Society met at Nelson Hotel, Rockford, September 8, 1914, Dr. E. E. Ochsner in the chair. Members present, nineteen. Minutes of previous meeting were read and approved and the following program was rendered:

Dr. Ranseen presented a case of chronic sciatica treated successfully by injection of 3.5 ounces of normal salt solution into the nerve at freezing temperature.

Dr. Gill reported two interesting cases: One was that of a lady with two uteri and a divided vagina; the other was a case of double extra-uterine pregnancy.

Dr. Tuits reported three cases of pyelitis complicating pregnancy, all on the right side. Recovery occurred in all with vaccine and urotropin treatment. Dr. Gill also reported three cases occurring on right side.

Dr. Eakin reported a case simulating mild infantile paralysis for diagnosis.

Dr. Daniel Lichty of Rockford was next called upon as the speaker of the evening. Dr. Lichty's subject was, "The Flag and the Doctor." It being the centennial anniversary of the writing of the hymn, "The Star-Spangled Banner," the society had the pleasure of listening to an able historical paper. The speaker brought out the fact that the composer of the national hymn had gone to the British fleet to rescue a physician, Dr. Beane of Baltimore, and his remaining on an English vessel during the bombardment of Fort McHenry furnished the inspiration for the song. The chairman extended to Dr. Lichty a vote of thanks for his very able essay.

A report was read by Dr. Lofgren of the State Medico-Legal Committee.

The president appointed a committee of three, Drs. Lichty, Hatch and Penniman, to formulate resolutions of sympathy upon the recent death of Dr. Leo O. Scott.

It was moved and seconded that from now on the fee for a normal delivery should be $35.00. Motion carried.

It was moved and seconded that the president appoint a committee of three to revise the old fee bill and report at next meeting. Motion carried. The chair appointed Drs. Weld, Lakin and Tuits.

Adjournment.

DR. RANSEEN, Secretary.

## McHENRY COUNTY

Meeting called to order in the Harvard Cottage Hospital at 10:45 a. m., Friday, July 31, 1914. Dr. Chas. C. Peck, vice-president, in the chair, President Dr. A. B. Smith being incapacitated by a Potts' fracture.

Minutes of the last meeting read and approved as read.

An interesting talk was then given by Dr. C. W. Goddard, local C. & N. W. R. R. surgeon at Harvard, on the subject of "Accidental Injuries," with reports of cases and demonstration of instruments devised by the doctor.

There being no further business the meeting adjourned, following which a pleasant dinner was held at the Ayers Hotel.

*Regular Meeting, Aug. 28, 1914*

Meeting called to order at 10:45 a. m. in the Marengo City Hall, August 28, 1914, by the president, Dr. A. B. Smith. Present were Drs. Smith and Francis of Woodstock, Eshbaugh, Richardson and Gooder of Marengo, Peck, Goddard, Seelye and Johnson of Harvard, Statler of Huntley, Pillenger of Algonquin, and Dewey, Scatliff and Mann of Elgin.

Minutes of the last meeting were read and approved as read.

The secretary then read a communication from Dr. C. S. Ambrose, secretary of the Lake County Medical Society, suggesting that this society hold a joint meeting with them in the near future at McHenry.

Moved by Dr. C. C. Peck that this society meet with the Lake County Medical Society as suggested, date to be arranged by the secretaries and that the ladies be invited. Motion duly carried.

A highly interesting paper was then read by Dr. Mann, the following abstract of which was kindly furnished by the doctor:

### THE PLEOMORPHIC ASPECTS OF THE DIPHTHERIA BACILLUS.

A. L. MANN, M. D.,

City Physician, Elgin Illinois; Chief of Staff, Larkin Children's Home, Elgin, Illinois.

Placing diphtheria near the top of the list of "wanton murderers of the human race," and referring to the heavy expense and inconvenience incident to fighting the enemy by quarantine, the writer makes a plea for a positive demonstration of the causative organism in all cases of anginas accompanied by a pseudo-membrane, demanding that the diphtheria bacillus be conclusively identified and shown to be present before a positive diagnosis of diphtheria be made, in order that the expense and inconvenience of quarantine may be avoided in non-diphtheritic cases.

The writer submits the claim that there are two distinct types of diphtheria organisms which should be recognized as such, viz., 1. The irregularly club-shaped pleomorphic organism of Klebs-Loeffler, and 2. the distinctly uniform organism of Neisser, showing invariably a typical polar granulation when stained by Neisser's technique.

The claim was supported and supplemented by microscopical exhibits of specimens of the two types, which were recovered in culture from a series of coincidental cases, and which were remarkably convincing as well as interesting.

As tending to show the difficulty in recognizing the organism from text-book descriptions, six prominent authors on bacteriology and laboratory technique were cited with most confusing results.

In concluding the writer pleads for, 1. cultures from every case of tonsilad, pharyngeal or laryngeal angina, 2. the recognition of two distinct types of organisms as being diphtheria bacilli, the presence of either of which justifies and demands quarantine and the use of anti-toxin, 3. the invariable use of Neisser's stain as a primary procedure, to be followed by Loeffler and Gram if still in doubt, animal inoculation not being considered here owing to the time limitations of the clinical emergency.

A lively discussion by Drs. Pillinger, Francis, Goddard, Johnson, Curtis, Smith, Seelye and Mann followed.

Meeting adjourned.

N. L. SEELYE, M. D., Secretary.

## COOK COUNTY

### CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.

Regular meeting held March 17, 1914, with the president, Dr. Otto J. Stein, in the chair.

### REPORT OF A CASE OF NECROSIS OF THE SUPERIOR MAXILLA WITH A SEQUESTRUM CONTAINING THREE INCISOR TEETH WHICH LOOK EXTERNALLY AT LEAST TO BE NORMAL.

Dr. L. W. Dean, of Iowa City, Iowa, reported this case. The sequestrum was produced in a very unusual manner. The patient, a female about seventeen years of age, gave a history of having had her teeth regulated. This regulation had been carried on for nine months preceding the time that the patient came into Dr. Dean's care. The specimen shows around the roots of the three teeth near their apices an elastic band, of the kind which orthodontists use in regluating teeth. The band had evidently been forgotten or lost, and had wandered down along the roots of the teeth to near the apices and produced the sequestrum.

### EXHIBITION OF SPECIMEN OF BRAIN SHOWING NOTHING EXCEPT A SMALL TEMPORO-SPHENOIDAL ABSCESS.

Dr. Dean reported the case of Mr. B., white, aged thirty, admitted to the University Hospital on January 13, 1914. The patient had suffered from chronic otorrhea in the right ear for nine years. About a month previous the patient had had an attack of dizziness, which was not accompanied by vomiting or headache, and since then he had had several dizzy spells. Examination showed the eyes to be negative; ears: right, no hearing, tympanic membrane destroyed, canal filled with pus, tympanic cavity contains granulations, caloric negative; left ear negative. Examination of blood: Leucocytosis, 10,400; polynuclear count, 76 per cent. Physiological nystagmus to the left and right. Station: Patient falls to the right, regardless of the position of the head. Pointing test: With the right hand to the right; in the absence and in the presence of an induced nystagmus, to the right. Left hand normal, in the presence of an induced nystagmus points to the left. Operation on the right mastoid, January 14th—temporo-mastoid exteneration. Cortex of mastoid eburnated. Large area of necrosis around the antrum. There was a large perforation in the inner table of the middle fossa. Labyrinthectomy was performed, discovering a large fistula in the semicircular canal. The seeker introduced into the fistula readily entered the vestibule. The bone in the solid angle was soft and necrotic, the necrosis extending to the posterior fossa. The bone was removed to the dura, exposing it in the posterior fossa anterior to the sinus and in the middle fossa over the tegmen antri.

Following operation the patient has slight facial paralysis; no symptoms; pointing test was normal

with right and left hands, and the station was normal.

On February 13th the patient complained of headache and being dizzy. On February 14th there was much pain in the head, some rigidity of the muscles of the neck, no Kernig, no muscular twitching, reflexes normal. Blood count: leucocytosis, 23,000; polynuclear of 79 per cent. Lumbar puncture showed slight pressure. Examination of spinal fluid: Fehling's solution not reduced; Noguchi globulin positive; cell count, 9,000 per cubic millimeter. Subdural drainage was performed. For several days the patient's condition was very much improved. On February 19th the patient became worse and died of meningitis. On autopsy, a small abscess in the temporo-sphenoidal lobe was reported, about the size of an acorn, which had ruptured into the meningeal space, and general diffused septic leptomeningitis, most marked in the middle fossa on the right side.

The interesting things in this case were: Were these cerebellar symptoms the result of some change in the posterior fossa, or were they secondary to the brain abscess in the temporo-sphenoidal lobe? Dr. Dean thought the symptoms were due to a collection of fluid between the dura and the cerebellum that was secondary to the labyrinthian lesion which was removed, or at least had its pressure dissipated by the bony decompression operation that was performed when the labyrinth was operated.

Dr. Dean then reported a second case of brain abscess, as follows: Mrs. B., white, aged 52, admitted to University Hospital, February 3, 1914. For the past three or four years the right ear had discharged at times, the last time in the late fall. Patient said that she had had terrible pain in the temporal region, just above the ear, all the time. Examination: Patient moans and complains constantly of terrific pain in the head. Mental condition very poor. Constantly agitated and suffers from a delusion of unpardonable sin and being in the power of the evil one. Examination of the eyes negative, except for a neurotic atrophy of the right optic nerve, with a vision of six-ninth in that eye. Examination of the ears: Right ear, whisper heard at ten feet, drumhead scarred and thickened; positive caloric. Left ear, examination negative. X-ray of mastoid shows eburnated bone, or mastoiditis on the right side. Examination of blood showed a leucocytosis of 12,000, with a polynuclear count of 76 per cent. Urine and spinal fluid negative. Diagnosis: Chronic mastoiditis with extradural abscess or cerebral abscess.

Operation, February 6, 1914, mastodectomy. Cortex of the bone hard and eburnated, tegmen antri and mastoid cells posterior to the antrum necrotic. The dura was exposed in the middle fossa and found bulging and covered with rough granulations, but not under increased tension. In hunting among the granulations a small opening in the dura directly over the tegmen antra was found. On stretching this opening no cerebro-spinal fluid escaped. Some of the brain substance removed from the inner surface of the dura with the curette showed pus cells, necrotic tissue and streptococci. Material removed from the depth of one-half inch in the brain gave the same findings. The diagnosis was made of brain abscess with discharging through the dura. The sinus was slightly enlarged and a plain piece of gauze inserted three-fourths of an inch into the brain. Following operation the patient's condition was somewhat improved, but she still complained of the pain in her head, and the result was unsatisfactory. The temperature, which had been ranging from 99° to 101.5°, continued the same. Ten days after operation, because of temperature of 100° remaining, and because of the patient's general condition not improving, a second exploration of the brain was made. Following the same pathway, at a depth of two inches, an abscess cavity was opened. From it fully an ounce of pus escaped. A gauze drain was inserted.

Following this procedure the temperature returned immediately to normal, the pain disappeared, but the patient's maniacal condition persisted. A colleague saw the case and made a diagnosis of melancholia, with the cerebral infection only a contributory factor. It was found impossible to drain the abscess cavity thoroughly with a gauze drain, and on March 20th a rubber tube was inserted. At present the tube is in position, but there is no discharge of pus. Outside of the mental condition, the patient is practically normal.

Dr. Dean then reported the case of Mr. B., white, aged 51, seen in consultation on March 9, 1914. On May 1, 1913, the patient had had a mastoidectomy, with obliteration of the lateral sinus for mastoiditis and a sinus phlebitis. Early in the fall of 1913 the patient complained of headache and roaring in the head. The pain was in various parts of the head, but always on the right side. Otherwise the general health was good. At times the patient was dizzy. On the morning of March 9th the patient complained of headache, and said that his head had been aching for several days, and that there was pain in the right ear. Patient worked at his usual vocation of driving a motor car throughout the day without apparent trouble. In the evening, while in the barber chair, the patient said, "My, I feel deathly sick," and in a few minutes he was unconscious. He was examined by two physicians, who reported him unconscious. There were no reflexes present, except a very slight contraction of the pupil to light. There was complete general anesthesia, including the corneae, except over the squamous portion of the right temporal bone, where tapping with the finger produced a spasmodic contraction of the muscles of the face and eyelids. The patient was moved to the hospital, arriving there the evening of March 10th, about ten o'clock. Examination of the general nervous system was negative; examination of the urine negative; blood pressure, 95 mm. of Hg.; spinal puncture revealed a clear fluid, under apparently normal pressure; temperature 98.8°; pulse 60; respiration 20; examination of the eyes revealed pupils small, re-

action to light sluggish, a very fine horizontal nystagmus present, shown only by using the ophthalmoscope, fundi normal; examination of the right ear showed the right drumhead reddened and slightly bulging.

Operation: A semicircular flap of skin, fascia, muscle and periosteum was elevated from the temporal region, the incision extending from the upper part of the mastoid in a circular direction, upwards, forwards and downwards, to the anterior border of the posterior and of the zygoma. The flap was dissected downwards so as to expose the upper border of the external auditory canal. The dura was tense and reddened. It was painted with tincture of iodine and then incised. Incision of the dura resulted in the escape of a small amount of fluid under pressure. The brain did not bulge into the opening, so we were probably dealing with a localized meningitis. The brain was explored. At a depth of one and one-half inches from the lateral surface, over the tegmen tympani, a softened area was discovered. A gauze drain was inserted, the semicircular flap replaced, and a vertical incision one and one-half inches long made directly in the dura. Through this incision the drain was passed and moist compresses applied.

The morning following the operation the mental condition was good. His brother, who was with him during the night, said that after the effects of the ether were gone he was apparently mentally all right. In the morning he recognized the speaker immediately, although he had not seen him for six months before, and then only a few times. His temperature was normal; pulse 70 to 80. On the fourth day the drain was removed, and the patient has been apparently well since. At the time the drain was removed a condition new to us was observed. Following the withdrawal of the gauze drain eight or ten very large bubbles of gas escaped. They came from the bottom of the cavity and carried with them pus and pieces of the brain debris. Unfortunately, they were not able to get a culture of the gas-forming microorganism which was probably the specific cause of the trouble. There has been no opportunity for the admission of extraneous microorganisms. In this case Dr. Dean thought that the sudden attack of unconsciousness was due to the formation of gas in the cerebral cortex.

DISCUSSION.

Dr. Joseph C. Beck had talked with Dr. Dean about these cases before the meeting, so felt that he could say something about them, having had a chance to think them over and look up the question. From the remarks the doctor made in presenting this wealth of material, it was almost impossible to discuss the cases and say anything definitely about them, especially the first one. He thought that all the symptoms the patient had could be very easily explained on the labyrinthine irritation rather than any brain irritation. Patients with labyrinthine irritation will have a falling to that side, and the pointing test usually made in that condition is not very dependable. At least he has not found it at all reliable. At any rate, the small temporo-sphenoidal abscess there could scarcely come from contiguous pressure on the cerebellum—there could not be sufficient pressure there to produce these symptoms. While the doctor said the case has necrosis of the labyrinth, yet it might have been a localized labyrinth necrosis. There might have been some remains of the vestibular apparatus present. He had examined a case the day previously in which irritation with hot and cold water gave absoltely no reaction, in a case of supposed labyrinthine destruction, yet when he turned the patient he got a very lively reaction.

The case of gas formation in the brain interested him because he had recently a case of abscess, with pure culture of a motile bacillus, which was bacteriologically proven to be a bacillus pseduo-dysentericus, Class 2, according to the reactions used for the identification of this class of organisms. The case looked as though it might have been typhoid, or a bacillus coli communis infection, but it proved to be the bacillus pseudo-dysentericus, and that case had gas formation in the region of the abscess. The group of colon bacilli have that tendency.

Regarding the case of necrosis of the teeth, he thought there was insufficient cooperation between dentists and doctors in this line of work. He had shown a case to Dr. Dean which he would like to refer to briefly, which was quite similar. A patient came to him having an ulcer of the septum and he could not account for the trouble in the nose—that is, from any nasal affection. This patient complained of pains all along the face. So he sent the patient back to her dentist and said that he could find nothing to account for her pain. The dentist told the patient to "get a good nose doctor." The speaker had her teeth examined by another dentist and he discovered a crowned tooth which he thought was at fault. He simply took off that tooth-cap, and there was a dead, black tooth, and underneath it was a sequestrum, one-quarter inch in diameter, and beyond that an area of necrosis. And that was the point he wished to make, with reference to the difficulties that he was meeting constantly in that the dentists did not cooperate sufficiently in the differential diagnosis and treatment about affections of the nose, throat, mouth and ears and the teeth.

## A PROTEST AGAINST THE NON-CENSORSHIP OF ADVERTISEMENTS OF SURGICAL INSTRUMENTS, ETC.

Dr. Arthur M. Corwin pointed out that through the efforts of the Council on Pharmacy and Materia Medica of our national association the medical profession, and therefore the public, has come to find something like security against fake drug combinations and secret formulæ that not so long ago found advertising space even in our best journals. By way of contrast, one may see the glaring misrepre-

sentations contained in various advertisements of surgical instruments that still appear in such journals. Numerous examples were cited. It is hight time that the pirate and impostor, the dealer in false pretense, should be shown up and driven out of business or compelled to reform. A proper committee or council should be established to scrutinize the goods and the pretensions of this class of advertisers, in order to protect the buying profession from instruments purported to be patterned after certain approved models, but which are often travesties upon the real thing. These grotesque imitations fail utterly in making good, and therefore disgust the purchaser and bring discredit upon the surgeon whose name the original instrument bears, and upon the operation or technique which he has recommended in good faith. There is no more reason for misleading the profession through false advertising of things surgical than of drugs.

DISCUSSION.

Dr. R. H. Brown asked if he was right in saying that recently an ordinance had been passed declaring against this fraudulent advertising, so that it is perfectly possible for a man to sue in a case of this kind, bring the evidence up in court and obtain judgment?

Dr. Corwin answered that there might be a local ordinance to that effect.

Dr. Brown said that if that were true in Chicago, then it would be a very easy matter to bring up such an impostor, get judgment and have that judgment published, without any serious reason for a comeback on the part of the manufacturer. It would be one of the best ways, perhaps, of bringing such frauds before the public.

Dr. E. Pynchon thought there was nothing new about the idea of instruments being made entirely different from the design of the one who first got the instrument up. He had had similar trouble with his nasal speculum. The first ones were gotten up by Truax, Greene and Company, and were charged for at the rate of $3.50. Different manufacturers reduced the price until eventually a firm in Philadelphia makes them drop forge, and sells them for fifty cents, and these are no good. He very often sees instruments bearing his own name that he could not use himself. They are not only advertised in catalogues, but he sees the advertisements for them in medical journals, and he also sees such instruments in physicians' supplies stores. It is wrong for surgical instrument dealers to reproduce different patterns of instruments so as not to conform with the design originally called for by the inventor.

Dr. J. Holinger said that usually things that are cheap in price are cheap in quality. He did not think it was the society's business to protect those who do not want to pay the money for good instruments. They deserve to be fooled. There is nothing new in that. But he wanted to ask Dr. Corwin where he would draw the line between cheap instruments from an acknowledged cheap firm, and worthless ones from a good firm. For example, there are chisels being sold every day by a well-known, first-class house which do not deserve the name of chisels, and these instruments are sold at fair prices. He had experience with them and spoiled nine chisels in one mastoid operation. Either they simply bent over so that the edge was practically double, or they were too hard and large pieces broke out. How would Dr. Corwin guard against that? We have no control over the open market. If the society would appoint a committee, as Dr. Corwin suggested, Dr. Holinger was afraid its members would be in hot water from the very start.

Dr. Corwin, in closing, said that the matter referred to by Dr. Pynchon brought up a very different phase of the question, namely, the pirating by different houses of instruments made by a certain house, which did not appear in the journal as advertised. He had referred in his paper only to journalistic advertising. That is a thing the society could get at. The medical colleges have been gotten at; also the drug concerns, and advertising quacks. The advertising of surgical appliances is just as tangible.

He differed with Dr. Holinger when he implied that the medical profession, as made up of individuals, should paddle its own canoe as individuals, and with no idea of the fundamental proposition that we are our brothers' keepers. Anything we can do to help each other is certainly in line with organized medicine and the ethics of our profession. It is a duty and a privilege to help the other fellow. To let a lot of irresponsible manufacturers misrepresent us to the public is wrong. The matter of the steel not being properly tempered is bad enough, but when an instrument comes out with a ratchet on it that has no function at all, and when such instrument was totally unlike the originator's model, he thought it was time for the profession to act.

He had simply attempted in his brief paper to voice a protest against that sort of thing and to stem the tide of that kind of misrepresentations, as far as possible.

## REPORT ON TWENTY-SIX CASES OF TONSILLECTOMY TWO OR MORE YEARS AFTER OPERATION.

Dr. Alfred Lewy made this report. Nine patients were improved or cured on the condition for which operation was performed. Four of these were operated because of suppurating ears and one for deafness. The improvement in these cases may have been due to removal of adenoids, which operation was performed at the same time. The other four improved cases were operated for frequent sore throat. Seventeen patients were apparently not benefited. In three of these, recurrent laryngitis has appeared since the operation. The cause of this is not accounted for. Of five patients under the age of six at the time of operation three are undersized as compared with other members of the same family.

There were no cases of arthritis in this list. Various disorders of obscure origin were not benefited.

The mechanical part of the surgery was good. One case showed a little asymmetry of the arch.

Dr. Lewy said that so far as this list was concerned, the results obtained did not justify the operation in seventeen out of twenty-six cases, and believes that the removal of tonsils is not indicated in the absence of direct evidence of their causal relation to the condition for which relief is sought. The condition of each patient was reported in detail. A careful study of a large number of cases is desirable, this list being too small for general conclusions.

DISCUSSION.

Dr. Arthur M. Corwin thought papers of this type might be very valuable in pointing a way for us, not only as operators on tonsils, but in other regions of the body, by taking up the subsequent results and trying to analyze those results in terms of the operations and the indications for those operations. Perhaps we have been too lax in doing that and have overlooked the importance of it. We have hundreds and perhaps thousands of patients who have been operated on for specific things in a specific way, and we do not know today what the conditions of those patients are and how far those conditions can be interpreted in terms of the operation and of the indications for which the operation was done. Therefore, he would compliment the reader of the paper at the outset for his point of view.

Great emphasis could be put on that first proposition but, as the essayist said, very little of value rests with so small a number of cases. As he referred to laryngitis in one or two cases, it occurred to Dr. Corwin that laryngitis, pharyngitis, dryness and a lot of other symptoms have been reported in the literature, but how far those conditions are referable to the systemic background or other complications or habits and manner of the patients' living, we would have to go into before laying any stress upon the fact that patients have had other conditions following resection of tonsils and removal of adenoids, and just how far these conditions were dependent upon the operation. Of course, that is drawing a long bow, say that laryngitis in those cases was due to the results of operation. And so with regard to the size of the patient's uvula in those cases. The results seem very uniform. So wide are the results of a beneficial nature so far as the size and growth of development of the brain and structural function in these cases are concerned, that we do not hesitate to say, where tonsils and adenoids offer a local regional or systemic reason for being removed, they should be removed.

Again, the matter of tonsillotomy under the age of the second dentition the speaker would not discuss for lack of time, further than to differ with the essayist's position.

Dr. Joseph C. Beck thought the weakest point in the presentation of Dr. Lewy was the fact that these were dispensary cases, and the conclusions which we could draw from these cases are different from those to be drawn from cases from private practice. For instance, the question of hygiene comes in, in the after-treatment, and differs very much in dispensary and private practice. Dr. Beck would like to have a report of ten private cases which had been followed and studied with that point in view—the ultimate result. The question of the ultimate result is bound to be touched on more and more, not only in the matter of the tonsil, but in goiter, appendicitis, and other things.

Dr. Beck has made a study of the question of tonsillectomy in relation to arthritis, particularly, and as he had said on previous occasions, he could not recall more than two distinct cases that had had pure joint or rheumatic infections that, when operated for the removal of the tonsils by tonsillectomy, had ever had another attack. He had many cases under his observation, adults particularly, who had had arthritis and septic symptoms, who were markedly benefited, so far as their symptoms were concerned, as long as a year after operation. At the end of that time they had recurrences to the degree that they were just as bad as before. It is not a question of the tonsil alone, but other foci of infection that we must study, especially now that the enthusiasm is so great and the work is thrown on the laryngologist. Everything is referred to the tonsil, everything comes from the tonsil, and we are liable to fall into that error and say yes, remove the tonsil, and then see the symptoms come back—the same symptoms that were operated for, particularly in reference to arthritis. He has been very much disappointed in his ultimate results in adult cases of removal of tonsils for the cure of rheumatic affections. There has been a general improvement—that is true—but the actual cure of the condition has not taken place. He would like to hear men who were enthusiastic on that subject express themselves on the ultimate result five years later. He thought the subject was very interesting.

Dr. Shambaugh expressed surprise at the large percentage of unfavorable results in the series of cases reported by Dr. Lewy. He could hardly understand what the indications were for the operation, or, in other words, what they were trying to cure by the removal of the tonsils, where there could be seventeen unfavorable results out of twenty-six operations. The chief indication for the removal of faucial tonsils in children is a history of repeated attacks of acute tonsillitis. Now, in all these cases there is bound to be a favorable result, as the child will not have tonsillitis again. Another indication for the removal of tonsils in children is the presence of very large hypertrophied tonsils, often obstructing the respiration. Here, again, we can have only a favorable result from an operation. If, on the other hand, we remove tonsils which have not been subject to repeated attacks of tonsillitis, and where there is no marked enlargement, because we hope that their re-

moval may have a favorable effect upon, for example, the tendency which the child may have to contract head colds, or because the child has purulent otitis media, I think it not unlikely that we shall be disappointed in most cases in the result. The relationship between the presence of adenoids and persistent nasal catarrh, as well as the persistence or recurrence of purulent otitis media, we all recognize. On the other hand, aside from the acute otitis media and the acute nasal catarrh which follow upon attacks of acute tonsillitis, I am inclined to doubt the tonsils as an important etiological factor in disease, either of the nose or the middle ear.

Take another class of cases, where the indication for the removal of the faucial tonsils is the existence of a systemic infection which has followed an attack of tonsillitis; for example, an endocarditis or acute Brights' disease. Here I believe that the removal of the faucial tonsils is certainly indicated, as the recurrence of the systemic infection is much more likely to take place through a subsequent attack of tonsillitis than from any other source. The result of the removal of the tonsils in such cases should not be classed as unfavorable simply because the case happens to develop a recurrence of the systemic infection through some other route. I repeat that the removal of the faucial tonsils in such cases removes the most probable gateway for a recurrence of the systemic infection.

As regards the arthritis, the situation is quite similar. If a person has an attack of articular rheumatism which follows directly upon an attack of tonsillitis, we all of us accept this evidence that the systemic infection which has caused the rheumatic trouble has gotten in through the tonsils, and in all cases where the joint trouble is at all serious we advise removal of the tonsils. In most of the cases with a history of this sort the joint trouble will clear up promptly after the removal of the tonsils. In other cases, however, where the relationship between the tonsils and the joint trouble seems to be established from the history, the removal of the tonsils may not result in the immediate clearing up of the infection in the joint. The reason for this seems to be that in some cases the infection that has taken place in the joints is sufficient to continue even after the original focus has been removed. In other cases these joints which have once been affected seem to remain sensitive and much more likely to develop acute reactions from sources of infection other than the tonsils. Dr. Shambaugh believes that the cases of joint trouble which distinctly follow upon an attack of tonsillitis and which are not entirely cured by the removal of the tonsils, do not constitute an argument against the removal of the tonsils in these cases. He pointed out, however, the danger of erring on the side of allowing one's self to do unnecessary things for imaginary tonsil trouble. The speaker has removed a great many tonsils because of systemic infections, such as chronic nephritis, chronic arthritis, neuritis, etc. In all cases of this sort where the systemic infection has not followed directly upon an attack of tonsillitis or where the presence of foci of infection in the tonsils could not be positively demonstrated, every effort should be made to discover other foci.

Dr. J. Holinger could only say, "I told you so." Four and five years ago he showed cases before this and other societies where tonsils has been removed and subsequently the patients had complained of practically the same symptoms as before operation. So that is nothing new. But he thinks the profession ought to draw one conclusion, namely, to stop hammering into the people's heads the idea that the removal of the tonsils is a panacea against all and every illness, and especially is this the case in the schools.

Dr. Burton Haseltine thought Dr. Lewy's idea a splendid one, but agreed with Dr. Beck that it is pretty difficult to judge of the end results in clinical cases. He was quite surprised at the percentage of poor results reported, but he did not think, in justice to Dr. Lewy, they should be discussed without knowing more details as to the conditions existing previous to operation. We don't know how much of the trouble reported later existed before operation; for instance, in the matter of suppurating ears. As he understood the essayist, quite a number of the reported cases were operated for the purpose of relieving or curing the suppurating ears, and in no case was the statement made as to whether the patient was treated after operation or not. It is extremely improbable that removal of the tonsils alone was expected to cure these cases.

He agreed with the other speakers that if we could make records from private practice it would be of far more value, for several reasons; first, the results in private practice are more vital to us; second, we possibly are more conservative in advising operation in private than in dispensary cases. Also, we are more apt to know the end results, since if they are not good we will hear of them much sooner. So that while he thought the idea was a splendid one and we should all follow it up, he hoped that other reports would include private as well as clinical cases. Any positive conclusion from such a limited number of cases would be exceedingly questionable.

Dr. Lewy, in closing, said that the gentlemen who criticised the small number of cases were perfectly justified, but the report was gotten up in the hope of encouraging the preparation of other reports of like nature by men who had perhaps more time to devote to it and could report on three or four hundred consecutive cases. He did not think we could draw any definite conclusions from twenty-six cases.

In each case he stated the cause for which the operation was done, but did not read them all on account of lack of time.

The question of tonsillectomy and tonsillotomy he would not go into either, since Dr. Corwin was kind

enough not to start anything, but he presumed the differences of opinion were both founded upon theory.

Dr. Beck's criticism that the patients were from dispensary practice and that we cannot judge the results in private practice from those in dispensary work was, of course, true. Patients in private practice frequently have other treatment than the mere removal of the tonsils, and this is also a factor in the end result; clinic patients more frequently have only the operation to which to credit the result. Also, the fact remains that the very large majority of tonsil operations that are done in the community are done in dispensary practice and if four or five hundred cases would average as poorly as these twenty-six, we are doing a gross injustice to the dispensary patient in the way of doing unnecessary operations. He believes that he refuses more cases than he accepts for operation at the Eye and Ear Infirmary—cases that have been referred from the schools—this in reference to Dr. Holinger's remark.

His intention is to follow his cases for a little while and judge the results—the cases that he refuses to operate as well as those in which operation is performed.

Another object of the paper was as a protest against indiscriminate tonsil operation, and he thinks that it is in the clinic that we are a little bit indiscriminate in operating. If the child has had a sore throat, the tonsils are usually removed. The cases should be studied a little more thoroughly.

One of the best indications for removal of the tonsils is frequent repetitions of tonsilitis. The cases in his report that were helped were just such cases.

The removal of tonsils for aural suppurative processes and non-suppurative deafness is, he believed, commonly practiced. Personally he could not see the sense of it, as removal of adenoids alone is usually all that is necessary, but it is his experience, in visiting other clinics, that it is considered a good indication for removal of the tonsils, and so also in many of the textbooks.

Dr. Shambaugh did not hear him read the reasons for the paper. He is thoroughly in accord with those who wish to remove tonsils for systemic infection, when they can reasonably show that the cause lies in the tonsil, and when they can find trouble in the tonsil itself, but he is not in favor of removing the tonsils just because they are there and moderately enlarged.

## THE UNUSUAL FINDINGS IN FRONTAL SINUS DISEASE.

Dr. J. Holinger, in a paper on this subject, said that an account of interesting indications and findings at operations on the frontal sinuses had been given at different times, especially in the Muenchener Medicinische Wochenschrift ("Frontal Sinus and Maxillary Antrum Operations"), 1913. Two new cases were added. The first was that of a woman of fifty-five, treated within the last few years for two acute attacks of inflammation of the right frontal sinus. A fresh attack, apparently worse than the preceding ones, kept her in bed for the last ten days. Hot and cold applications were of no avail. The entire right side of the head seemed red and swollen. The right eye also was swollen. Several groups of blisters seemed to be caused by too hot applications. In the nose pus was seen laterally and medially to the anterior end of the middle turbinal. Operation was advised on account of the experience of the preceding attacks and because the patient begged for immediate relief. Extradural or intradural involvement could not be excluded, but was rather a probability. As soon as the head was shaved similar blisters were found on the vertex as on the face, but they were strictly confined to the right side of the middle line. A diagnosis of herpes zoster was made. A radical Killian operation was performed, in spite of this new development, because we knew that the sinus was chronically inflamed, and the herpes zoster could well be a consequence of the sinuitis, as the supraorbital nerve often is exposed in the sinus. At the same time the nerve could be stretched. At the operation the sinus was found filled with pus and polypoid degenerated mucous membrane. The nerve was exposed and stretched out of the foramen. The result of the operation was great relief from pain. Slight attacks at great intervals could not be compared with the former suffering. Recovery took more than a month, but is complete.

The second case was that of a man, twenty-eight years of age, a baker, who fell in May, 1913, against a sharp edge with his right temporo-parietal region. Was not unconscious, but was sick for several weeks. In September he began to have fierce headaches on that side. In the beginning of October the right eyelids and forehead were swollen. The headache was at its worst in the morning and disappeared at about three in the afternoon every day. The frontal sinus was washed daily, affording considerable relief in the beginning. The pain was worst at the place where the trauma occurred and over the forehead. X-ray plates gave no new information. The diagnosis was empyema of the frontal sinus, with probable brain abscess. At the operation, November 11, 1913, an enormously large frontal sinus, reaching from temple to temple and well into the hairline, was found. In the inner plate a fracture line could be traced in the upper right-hand part in the direction towards the region where the trauma had occurred. The recovery was slow, taking until January. The headaches stopped, but a peculiar pain became more and more circumscribed in the temporo-parietal region. This area became smaller and smaller, until it finally was about the size of half a dollar and could be accurately circumscribed by pressure with the finger or percussion. Finally this pain, too, disappeared.

Of course, only a post-mortem would have cleared up this case, but Dr. Holinger thought the following

explanation was not far amiss: After the trauma in May, a brain abscess developed, infected from the close proximity of the frontal sinus. After the operation, when the source of infection was removed, the abscess healed. It is well known that a brain abscess does not need to leave a scar in the brain.

DISCUSSION.

Dr. Otto J. Stein said there is no doubt that, owing to the great variety in the size, shape and position of the frontal sinus, probably more than any of the other nasal accessory sinuses, we have to be on the lookout and alert to the changes in symptoms and pathology of this particular sinus. The cases reported by Dr. Holinger simply warn us of the unusual conditions that are constantly brought to our attention.

Dr. J. R. Fletcher said that the case of herpes zoster interested him very much. He had mentioned before picking up a section of bone of the head in which there was complete dehiscence of the bone. That is, the superior orbital nerve was absolutely exposed in the sinus. Instead of there being a canal there was dehiscence of the bone. In other words, this nerve was lying in a little notch, the floor of which was the membrane of the frontal sinus. Dr. Fletcher expressed the opinion then that that might occur in cases of orbital herpes, which are seen occasionally.

He had in mind a case that occurred in his own practice in which there were gangrenous spots and the patient today has quite a number of pits all around the orbit. A neurologist was present that evening and afterwards he said he would like to remind Dr. Fletcher that all of those cases were dependent upon inflammation of the ganglion. He was perhaps convinced against his will and has been of the same opinion still, that that was not necessary; that herpes zoster could be caused by having a nerve bathed in pus, where the nerve trunk itself was bathed in pus, and Dr. Holinger's experience seemed to bear him out in that opinion. Perhaps, after all, the condition referred to as occurring in the specimen he showed a couple of years ago would occur in some of those cases where the nerve is exposed—not running in a canal, but running in a groove that is covered on the outside by dura and skin and on the inside by mucous membrane only. He has the specimen referred to in his possession now. There is no bone between the nerve and the frontal sinus at all. As soon as the nerve was removed the sinus was exposed.

Dr. Joseph C. Beck wanted to speak with reference to the radiogram exhibited by the essayist. He would differ with him that it was a brain abscess case. He thought it was a case of bone necrosis. At least that would be his reading of the X-ray picture. It looked to him like a scarification of the bone and absorption, as we see it particularly in syphilitic cases in the early stages.

He has seen these large frontal sinuses, such as Dr. Holinger described, but truly frontal sinuses. In this connection he wanted to speak about the Killian operation in these large sinuses. He did a radical Killian operation in a man who had a very large frontal sinus, very deep. He thought there was a double frontal sinus, from before backwards. Dr. Cavanaugh, who was present, assisted him in the operation. He thought it was a very rare case, but on looking up the literature he found that it was perhaps a very large ethmoid cell behind the frontal sinus, as Logan Turner has shown quite a number of them. The recent work of Warren Davis shows that distinct double frontal sinus does not exist. This patient was cured of his frontal sinus trouble, with not a very large deformity, still he has pestered the speaker and probably will continue to do so on account of a so-called scar through his eyebrow, and he imagined the cross incision, employed by Dr. Holinger in his case, would probably be still worse.

He would judge from the paper that Dr. Holinger is doing a lot of frontal sinus work by the Killian radical method. He personally is not doing the frontal sinus work so radically as Killian does; he is trying to avoid it as much as he can.

The X-ray picture of the antrum referred to was not taken in the proper angle and therefore he did not feel that it would be possible to use it as a guide for operation.

Dr. George E. Shambaugh stated that experience had taught him that most cases of frontal sinus infection can be adequately relieved by intranasal operation. In most cases the suppuration can be stopped entirely; in others, even though the suppuration does not entirely cease, the free opening into the nose relieves the patient from the pain as well as from the danger of an intracranial complication. During the past year he has operated upon two cases where an external fistula into the orbit existed and in both cases the operation was followed by the immediate spontaneous closure of the fistula and the relief of the discomfort which the patient had suffered because of the obstructed drainage of the nose. The intranasal work for the relief of a frontal sinus abscess includes the thorough removal of the anterior ethmoid cells; that is, of those ethmoid cells which drain into the middle meatus. If the intranasal work is done carefully by one who understands thoroughly the anatomical relations in this region, the patient is not exposed to any serious danger. The speaker has operated on a great many frontal sinus cases in this way and has never had a dangerous sequel. The external operation, as devised by Killian, may have to be resorted to in the few cases where adequate relief cannot be obtained by intranasal work, but these cases are extremely rare. A patient who is free from pain and who understands that the danger of an intracranial complication is in a large measure removed by the establishment of free drainage into the nose is usually much happier even with the continuance of some nasal discharge than he would

be to have a scar such as is always left by a Killian operation.

Dr. Holinger, in closing, said that he thought he was conservative in his operations on the frontal sinus. In neither of the cases reported did careful intranasal work, carried on for a long time, relieve the patient.

The case of herpes zoster had been treated for several acute attacks before. There was absolutely no difficulty in getting into the sinus for ventilation and washing. Neither the patient nor the speaker is sorry that the radical operation was performed. The patient was very grateful that the fierce pains stopped after the operation. No other means could have produced that result.

Regarding the other case, of probable brain abscess, he would only say to Dr. Beck that there was no syphilis in the case. There was no indication for suspecting any other disease of the bone.

Dr. Beck asked if there was no injury.

Dr. Holinger said that of course there was an injury, but it was not visible, as it occurred seven months previously. We know that after a trauma to the skull there are sometimes fractures of the inner plate, followed by abscess of the brain. It seems quite plausible that at the time of the injury a fracture line ran from the place where the injury occurred down into the inner plate of the enormously large sinus, and that the infection traveled from the sinus along the fracture line to the lacerated brain tissue.

As to the deformities following the Killian operation he does not see many deformities following it, and he does not see either how he is going to limit his indications for the operation. He always treats the patients intranasally, but, as he said, everything has its limitations, and in neither of the cases that he has operated so far would he have seen any possibility of a lasting result from intranasal work.

## PEMPHIGUS INVOLVING PRIMARILY THE MOUTH AND THROAT, WITH REPORT OF CASES.

Dr. Robert Sonnenschein, in a paper on this subject, said that all varieties of pemphigus may appear upon the oral and pharyngeal mucosæ, but while the chronic forms are fairly often found, the acute cases are considered to be quite unusual in occurrence. Owing to constant maceration and other unfavorable conditions, the actual vesicles are seldom seen. Instead, there usually appear ragged, gray-white membranes or smooth, red or granulating erosions. Differentially, pemphigus on the upper respiratory tract must be diagnosed from a number of conditions, such as lues, herpes, leukoplakia, diphtheria, etc. The duration of the disease varies greatly from a few months in the acute to many years in the chronic form. The primary or early appearance of pemphigus lesions in the mouth or throat is considered by most authorities as pointing to a very poor prognosis, most of these cases dying within a rather short time. This fact is emphasized in the history of the two cases presented. In both of them death occurred within six months of the onset of changes in the oral mucosa. In neither case did vesicles appear on the skin until rather late in the course of the disease.

### DISCUSSION.

Dr. W. T. Mefford asked the doctor what these people die of; what is it that kills them; what are the pathological findings other than the local sore? Again, he would like to ask the doctor whether he has tried autogenous vaccines. It seemed to the speaker that this was a field for their use.

Dr. Otto J. Stein recalled a case of pemphigus which he saw when a medical student, and it made a great impression upon him. These cases are very rare, of course, to nose and throat men. The dermatologists formerly looked upon them as quite rare, but now they do not seem to be quite so infrequent. The case referred to was very extensive, involving the skin over the entire body, and also the mucous membrane of the mouth, throat and trachea, and the entire intestinal canal, as was later shown by autopsy. He received the impression at that time, from the professor who demonstrated the case at the clinic, that almost all of these severe acute cases died. The case was so extensive and made such a vivid impression on his mind that he has often thought of it in connection with other eruptive diseases that he has seen at different times since, although he has never seen a case that he could call acute pemphigus.

He also referred to the cases that were seen at St. Louis in November—chronic cases of the mouth and throat, which were very interesting.

Dr. Joseph C. Beck said that Dr. Stein's remarks reminded him of a case in his family. An old lady, now ninety years of age, about fifteen years ago had an acute pemphigus, of the giant form of blebs, and was seen by a number of men expert in this line. They all gave an unfavorable prognosis and said she would die from this disease. At that time a paper appeared in the Journal of the American Medical Association by a man in Chicago—Dr. Dubs. He had just returned from Europe and reported a case that he had treated at Kaposis clinic of that type that recovered. This was the treatment: He placed the patient in a bath tub, in bicarbonate of soda solution, and kept her there for nine days, daily coming and opening a number of these large bullæ and never taking the patient out of the water. She was kept there under stimulants of brandy and being fed all she would eat, and she recovered. She had pemphigus of the mucosa also.

Dr. J. R. Fletcher a few years ago had the good fortune to see a case of acute pemphigus of the hemorrhagic form, the blebs being of about cherry size. The same day he also saw a case of herpes. In both cases the blebs were on the pharynx—very distinct, and but for the color in the case it would have been very difficult to have distinguished them.

At least that was his conclusion. Mere inspection of the case would not have gone very far.

As he understands it, these cases are more numerous abroad—either they are discovered more often, are better diagnosed, or else it is true that they are more numerous there than here. He thinks we ought to look out for them. A colleague a few days ago mentioned a case to him in which the diagnosis was urticaria. Of course, that does not necessarily form blebs. They were weals, more or less, but he said that on the top the membrane was somewhat eroded and had a whitish appearance. The speaker wondered whether the diagnosis was correct, or whether it was a case of pemphigus or herpes.

Dr. Sonnenschein asked if there were small vesicles on the pharynx, to which Dr. Fletcher replied in the affirmative.

Dr. Sonnenschein asked how long they had been present, and Dr. Fletcher said only a very short time, as he understood it. They were perfectly new blebs.

Dr. L. W. Dean of Iowa City said that the only case of pemphigus that he had ever had was in the hospital at the present time. The patient came under his care for the first time nine years ago, and at that time had pemphigus of the skin, conjunctiva, cornea and some blebs in his mouth. Treatment was not very successful and the patient came to Chicago, went from Chicago to New York, from there to Berlin, and from there returned to Iowa, the pemphigus continuing in spite of treatment received in each city. It did not do much damage in the mouth. It was a chronic case. He lost his vision in one eye. He developed entropion, with ulcer of the cornea and lost the vision in the other eye, when the chronic pemphigus disappeared. He came under the speaker's observation then and he sent him to the college for the blind. He developed measles. He has had no nodules for four or five years. This had seemed to him a very unfortunate but very interesting case from the very beginning up to the present time.

Dr. Sonnenschein, in closing, and answering Dr. Mefford's question, said that vaccines were not tried in this case because, in the first place, he did not think of using them; second, about six weeks after first seeing the patient he was seriously injured and only knows the rest of the history from the other physicians. Regarding the cause of death, he does not know that that is definitely known, except that gradual emaciation and cachexia appeared, as in other toxic conditions, and apparently that was the cause of death in the case reported.

As to Dr. Stein's statement, dermatologists do see these cases, but those are the cases that show themselves on the skin, and which are easy to diagnose. The point he wished to make was that diagnosis was made by expert dermatologists before the lesions appeared on the skin; in fact, in this case the lesions appeared on the skin very late in the disease.

Dr. Beck's case was an acute one, and at the same time showed lesions in the mouth. That is very rare. The essayist had tried to emphasize the point that the acute cases, beginning with the lesions in the mouth, are almost invariably fatal in a few months.

Dr. Fletcher's case, with blebs in the pharynx, was a very unusual condition, because these blebs usually, as Chiari has shown, burst shortly after formation.

Regarding Dr. Dean's case, the lesions may recur and disappear for a long period of years.

The point made in the paper was simply with reference to the acute lesions in the mouth.

Dr. Fletcher said that he had seen the two cases he referred to in Chiari's clinic.

---

## CHICAGO OPHTHALMOLOGICAL SOCIETY.

A regular meeting was held April 20, 1914, with the president, Dr. Wesley Hamilton Peck, in the chair.

On motion, duly seconded, the resignations of Drs. F. A. Phillips and E. R. Lewis were accepted.

Dr. George F. Suker read a letter from the General Electric Engineering Company, of Cleveland, offering a scholarship in ophthalmology to some one interested in the subject.

On motion a committee was appointed to recommend suitable candidates for the position. The committee was named by the president as follows: Dr. H. S. Gradle, chairman; Drs. Suker and Albro.

The application of Dr. Frederick D. Vreeland was referred to Dr. H. W. Woodworth, chairman of the membership committee.

Dr. M. H. Lebensohn presented a case of glaucoma, concerning which he read a paper entitled:

### "GLAUCOMA FOLLOWING CATARACT EXTRACTION."

Mr. George T., age 53, was admitted to the Illinois Charitable Eye and Ear Infirmary June 15, 1913. with a history of failing vision in the left eye nine or ten years and the right eye five years. Diagnosis, right eye immature cataract; left eye, mature senile cataract; pupil of left eye reacted normally; perception and projection good. On June 23 an iridectomy of left eye, about 5-6 M. M. wide was performed, with little reaction following. July 15 vision 200 with a X 11.00 20/40. There was a very thin capsule in the pupillary area. He was needled July 22. July 25 with a X 11.50 he had vision of 20/20 X 2 or 3, and that was the lens prescribed for him. The tension came down and the patient became comfortable again. About the end of November the tension was taken with a tonometer, and it varied from 29 to 40, at one time going as high as 44. Eserine sulphate and pilocarpin seemed to have little effect. February 2, 1914, the tension was 53½ and a scleral trephinning was done below, and a peripheral iridectomy. Twenty-four hours after there was a moderate ciliary injection and the wound drained nicely.

February 6 ciliary injection almost entirely gone, wound well drained and no pain. February 14 vision in left eye 20/40. February 18 the patient could not see the electric lights in his room and vision was reduced to fingers about ten inches. Examination showed large brownish mass in upper temporal side. Diagnosis was made of detached choroid. The patient put to bed, eye bandaged, light diet ordered and dionin used in eye. There was no pain and after ten days the reattachment was complete, with vision of 20/30. In two weeks it was 20/20 X 3 and now it is about 20/15, with tension normal.

Dr. Lebensohn said it would be interesting to have statistics of cases of trephining without iridectomy, so as to know whether detachment ever follows that operation.

## EYE DISEASES AND AUTOINTOXICATION.

Dr. Clark W. Hawley stated that many eye diseases are cleared up under a urinalysis, showing that the system is absorbing toxins from the lower bowel. It is here the waste products are stored, and if not properly eliminated they are absorrbed into the circulation. The uveal tract of the eye, on account of its exceeding vascularity, is a very good stopping point for any wandering toxic material, and thus we have iritis, cyclitis, choroiditis and other inflammatory manifestations.

The diagnosis is made through a very careful analysis, there being two main abnormal conditions which must be taken into consideration, first, acidemia, and, second, evidence of poisonous extractives present, as indican, indol and skatol.

The treatment consists in a most thorough cleaning out of the lower bowel at regular intervals. Treat the acidemia with some form of alkali and regulate amount of water taken. As to medicine, use some form of iodine along with cathartics. For flushing out the lower bowel use three pints to two quarts of water at 110, and in some cases a second flushing immediately follows with the temperature at 120. A tablespoonful of salt is added each time, and the time allowed should be from ten minutes to a half hour. Place the patient in the knee-chest position.

Dr. Hawley reported the case of Mrs. M., May 5, 1913, who complained that her glasses needed changing. The vision of the right eye was 6/18 and the left eye 6/12, no glasses improving the vision. On examination choroidal disease about the macula was discovered. The most painstaking care on the part of the patient in following instructions resulted in a very satisfactory improvement. The charts exhibited by Dr. Hawley showed an increase in amount of urine passed, a decrease in specific gravity and acidity. By October 6 all the conditions were vastly improved, which continued until February 25, when the extractives appear again, due to a partial meat diet. The choroidal disease was arrested and the vision improved two lines. The mental and general bodily condition have also markedly improved.

Dr. M. had had recurring attacks of iritis, an analysis of his urine showing high acidemia and indican present. Dr. Hawley at once put him on the proper diet and treatment, since which time he has had but one attack, and that brought on by not following the prescribed diet.

Dr. Hawley stated that in 1910 he was suffering from apparent chronic cyclitis. A urinalysis disclosed a severe case of autointoxication. After treatment for two months the opacities in his eyes, from which he had suffered, had nearly disappeared. The uveal tract, when once involved, is very sensitive, as is evidenced by the fact that the opacities reappeared after Dr. Hawley had been eating cheese at meals for about a month. After discontinuing the cheese the opacities disappeared after two months. The same old opacities appeared after eating a moderate proteid diet for two months, another evidence that the rule must be followed. He again began treatment and at this time the opacities are hardly perceptible.

Dr. Hawley said that it had been stated that constipation is caused by bowel flushing, but his experience had disproved this as to himself and a number of patients. One patient's severe constipation was entirely removed.

In concluding Dr. Hawley stated that in every case that he had suspected autointoxication to be the cause of the eye symptoms, with the co-operation of the patient, success had followed the treatment, and he felt sure that autointoxication explains many indefinite symptoms of eye strain.

### DISCUSSION.

Dr. Brawley stated that the author of the paper claimed to do entirely without proteids. He did not see how it could be managed, for while he could do without animal proteids, it would not be easy to get along without the proteid in the wheat germ. Only in rare instances is it necessary in the judgment of the speaker to do without proteids. We are able in many cases to gradually increase the tolerance of the patient for proteids by giving very small amounts of the more digestible types.

In consultation with internists who are familiar with cases of this kind they are found unanimous in their opposition to this constant flushing of the bowels. For immediate necessity it is invaluable, but it is claimed that it interferes later with the function of the colon and constipation may result. They prefer to use it as a temporary expedient, to be followed later on by the coarser brans and fruit, or vibratory stimulation without any fluctuation whatever may empty the bowels; also vibration over the lumbar area of the spine. In that way it is claimed that they break up the scybola and what they call the tunnel mass. This is broken up by vibratory stimulation.

In closing the discussion Dr. Hawley stated that he thoroughly agreed with everything that Dr. Brawley had said. He was desirous of shortening his

paper and did not care to extend it along certain lines more than could be helped. He disagreed with one statement made by him in regard to bowel flushings. Patients who have followed instructions have been cured of constipation. If the flushing is carried out with hot water and salt along with a mild cathartic and some form of iodine, constipation is not likely to be produced. Dr. Hawley said that an internist had told him he was doing a very bad thing, that he would have a case of constipation, and he thought so himself, but at the end of eight months he was cured of constipation. Internists do not know much about it and their success is not great. There are several forms of proteids. Fermentation in the lower bowel is nothing more nor less than bacterial disease. The effect of the vegetable proteids is considerably different from the animal proteids, and he referred to the animal proteid. Of course, there is a good deal to be learned, and possibly we may change our pinion, but so far the speaker attributed his success to this one fact.

## PROGNOSIS IN EYE INJURIES.

Dr. Richard J. Tivnen read a paper on the above subject, prefacing it by bringing out the close relation between diagnosis and prognosis in injuries of the eye. He emphasized particularly the necessity of gaining a complete history of the case in order to decide upon the best method of procedure and suggested that as only a brief inspection of the eye is usually possible, especially with children, that the routine observance of the following working details will give satisfactory results:

First—The position of the patient during the examination; suggested a recumbent position.

Second—Good illumination.

Third—Specific instruction to the assistants.

Fourth—Arrangement of a dressing table with reference to quick action.

Fifth—Use of local anesthetic.

In addition to the foregoing he urged the necessity of blood examination and Wassermann tests, smears and cultures from wounds and ulcers, urinalysis, both chemical and microscopical, testing of visual acuity and the making of skiagraphs, two at least.

Dr. Tivnen selected for especial consideration two types of injuries, viz., foreign bodies in the cornea and ulcers resulting from such trauma. In the case of the removal of a foreign body from the cornea he emphasized the necessity of protecting the cornea until the healing is complete, as a large majority of corneal ulcers are the result of foreign bodies inflicting injury, and no protective measure should be neglected. Patients suffering with corneal ulcers should not be allowed to make daily visits to the physician's office nor be permitted to engage in their regular occupations.

In the matter of injuries a number of factors determine the tolerance of the eye to the foreign body: Infection, the chemical character of the substance introduced, glass being best tolerated by the ocular tissues since it excites no chemical change. Copper is particularly dangerous. A number of instances were cited illustrating the tolerance of the eye to retained foreign bodies, one which proved that a foreign body may be in the sclera for five years without occasioning difficulty. However, such instances are rare, and this tolerance cannot be construed as a dependable nor certain element.

In the matter of perforating injuries of the globe the ophthalmologist is always face to face with the danger of the development of a sympathetic process in the sound eye and it presents no well-defined symptoms of its incipient development nor any dependable diagnostic measures which herald its approach. Once a sympathetic process is established, it is next to impossible to stop its progress short of destruction of the eye. When light perception is lost, tension becoming gradually reduced and evidences of inflammatory reaction are present, the globe should be removed without delay. The plastic closure of the lamph spaces and vessel, it is now declared, does not absolutely protect against the subsequent development of a sympathetic process.

Injuries from electric flashes, although presenting great external evidence of severity, have been proven by experience to be of rather a temporary character; in one case where the patient complained of inability to see and intense pain in and around the eyes, together with swelling, vision returned to normal within twenty-four hours, and after a period of two weeks the reaction of lids and globe had subsided, with no impairment whatever.

Dr. Tivnen issued a word of warning in regard to the too ready assurance of the surgeon that the needling operation in cataract is entirely void of danger. This operation is not one of perfect safety, as is sometimes assumed.

### DISCUSSION.

Dr. Clark W. Hawley said that there was little left for discussion, as the paper was so thorough. His experience had been very similar to the author's and one of his greatest difficulties had been to get the patient to appreciate the seriousness of the situation. He had always hoped for some way to combat sympathetic ophthalmia. A charming result was obtained by a quack in Salt Lake City by the injection into the vitreous of the eye of a considerable quantity of 1-500 bichloride of mercury. The pain was intense, but the eye was saved and so was the other.

The remarks in the paper concerning the X-ray are very pertinent, but in one case both the magnet and X-ray failed to locate a tiny piece of steel, which was found by careful examination. It is surprising to see how tolerant the eye becomes to foreign bodies. Dr. Hawley cited a case where a piece of steel had been in the eye for a year and six months, it being very small and having entered between the cornea and ciliary body. The member of the ophthalmological society at that time—twenty years ago—said that removal would cause the loss

of the eye, but I removed the steel and the man has 20/20 vision.

Dr. A. L. Adams stated that he was impressed with Dr. Tivnen's advice to have an X-ray examination in cases of doubt as to the presence of foreign bodies in the eye. He cited a case where the attending physician diagnosed contusion of the eye and he was unable to find any evidence of penetrating injury, as he was unable to make an examination of the fundus of the eye. In this case the X-ray cleared up the matter immediately and a foreign body was shown lodged just posterior to the eye in the optic nerve. The foreign body penetrated the lid in a transverse way, so that the wound had closed and was unnoticed. In doubtful cases you get much information from the use of the X-ray, even though there is no suspicion of a foreign body being in the eye.

Dr. Carl B. Wilkin was pleased to hear the statement made as to not placing too much reliance upon the word of the patient as to a foreign body being in the eye. In a recent case a patient had stated that he felt something strike his eye. On examination a foreign body could be seen in the retina, but with a magnifying glass no point of entry could be seen. In twelve hours the fundus was so opaque the fundus could not be seen. A spiral incision was made and the body removed. The procedure should be, first, the ophthalmoscope; second, the X-ray, and then the exact localization by means of the X-ray.

Dr. M. H. Lebensohn said that in the prognosis of disease it is well to remember the resistance of the patient. A man who was blasting on the railroad got a foreign body in his eye and after several weeks the X-ray showed the steel, which looked like a cap. After it was extracted it proved to be nothing but a small piece of exudate. The man made a healthy recovery.

Another case was a man who had a piece of steel in his eye six weeks. It was located in the lens and a cataract was taken out at the same time. The lens was extracted and that same evening he was walking around in the basement smoking a cigar. This was due to nothing but the man's great resistance.

Dr. Lebensohn recommended strongly the use of cyanide of mercury in sympathetic ophthalmia. In a recent case the eyesight had not been saved altogether, but the vision had been improved.

Dr. Tivnen, in closing the discussion, stated that he was glad that the speakers were unanimous regarding the accepting of the patient's word. In a recent case where there was no evidence of an entrance wound the fluorescent test was used and the patient about to be dismissed. Before dismissing him, however, a drop of cocaine was dropped into his eye and he was taken into the dark room. This was done without any apparent reason, but the result was amazing, as a piece of steel was laying on the retina.

The type of cases that give us the most worry are those of perforating injuries of the eye, with no foreign body in the eye and the patient declines to have the globe enucleated. It is easy in the case of a woman or young child to allow ourselves to be influenced. If we will read Fuch's article we will obtain the method of procedure definitely and positively, and any variation is apt to result disastrously. His dictum is perception, projection test and also tension of the eye. When they fail do not wait any longer.

A good work for this society would be to teach the radiographers to specialize in their work; for instance, we might concentrate upon two or three men in this city who will give the time and acquire the necessary equipment to localize these foreign bodies, occasionally bringing them here, perhaps, to demonstrate their plates.

On motion of the secretary the president appointed a committee of three, consisting of Drs. Tivnen, Lamothe and Nance, to investigate the nature of the contents of golf balls.

## THE MODERN THERAPY OF PNEUMOCOCCIC INFECTIONS OF THE EYE.

Dr. Harry S. Gradle stated that in the past our ideas of virulence had been gained by animal experimentation, but it has been recently shown that the pneumocccus in a 24-hour culture will assume one of three types; first type, small, delicate, lanceolate pneumococcus. It is very virulent. The second type forms the larger diplococcus, somewhat more rounded. This is not so virulent and is a more common type. The third type grows very luxuriantly and is not so highly virulent. In a culture it would be taken for a true streptococcus.

The new drug, ethyl-hydro-cuprein is an absolute specific against the true pneumococcus in every respect. It has not a great penetrative power and we cannot use the drug in closed cavities because it is highly toxic. It is very soluble in water, and as it is irritating, should be preceded by a cocaine anæsthetic. The use of this drug in pneumococcic infections of the eye will cause them to disappear in two or three days. In the pneumococcic infections of the tear-sac the treatment depends upon whether the condition is accompanied by stenosis. If not we can syringe out the passages with a 1 per cent solution of ethyl-hydro-cuprein and get rid of the condition in a short time. Our most important advances in the line of pneumococcic affections of the eye have been made in serpiginous ulcers.

Wessely's steam cautery is a small instrument with two tubes going through it, one solid metal tube being kept at a temperature of 100 degrees centigrade. With that the anæthetized cornea is massaged for a period of three minutes. Too short use of this instrument is dangerous, as it only numbs the organ. The steam must have a chance to kill the organisms. In severe cases we must resort to the steam cautery. In the intra-ocular affections there is no advance in the therapy. We can influence those

cases to a degree by the use of uro-atropine if we start early enough, and it is also good as a prophylactic agent.

PAUL GUILFORD, Secretary.

## JOINT MEETING OF THE CHICAGO MEDICAL SOCIETY AND CHICAGO OPHTHALMOLOGICAL SOCIETY HELD MAY 13, 1914.

Dr. W. H. Peck, president of the Chicago Ophthalmological Society, in the chair.

There was a symposium on "The Prevention of Blindness."

Dr. Frank Allport read a paper on "Conservation of Vision," in which he said that societies for the conservation of vision have been formed in various portions of the United States. They exist under different conditions. The membership in some is medical and in others both lay and medical. In Pennsylvania, Indiana, Missouri, etc., the organization exists as a committee of the State Medical Society; in New York, Illinois, etc., independent associations have been formed; in Ohio the "Commission," as it is called, is a part of the state government. There is also a national association, independent in its nature, and mixed in its membership. Some of these associations, such as New York, Massachusetts, Maryland, Ohio, etc., are doing energetic work, while others are inactive and almost useless.

At the 1913 meeting of the American Medical Association the council on health and public instruction appointed a committee on conservation of vision, of which the speaker was appointed chairman. The object of this committee was to produce interest and action in conserving vision and endeavor to concentrate under the auspices of the American Medical Association activities calculated to preserve the sight of this and coming generations. The work of this committee began by utilizing the machinery of the association. The council on health and public instruction sends out each week a sheet called *The Press Bulletin*. This is sent free to nearly six thousand newspapers, and the printed matter upon its face can be used by the papers as editorials, news matter, etc. This printed matter consists of short, plainly written articles on health topics. They are unsigned. The council also employs clipping bureaus and through them it is ascertained that these articles are very extensively used and are shaping public thought along medical lines in this country. The committee on conservation of vision has an appropriate article in the *Bulletin* each week and it is felt that this is a most important part of its work, as it reaches so many people and is under direct control.

The next work of the committee was to write, print and circulate twenty pamphlets on popular eye topics. The authors' names are printed on these. They are short articles, plainly written, so that non-medical people can easily understand them. They also are well illustrated. They are for sale at five cents a copy, but are also freely given away on proper application. Sets of these pamphlets have been sent to public libraries, women's clubs, teachers' institutes, state legislatures, health boards, etc., all over the United States.

Next it seemed desirable to the committee to create a national sentiment in favor of consevration of vision and for this purpose it was determined that lectures on this subject should be delivered in each state. A lecture bureau manager was appointed in each state, who was willing to superintend the work in his state. Where a state organization for conservation of vision existed, one of its officers was selected to carry on the work, but where no such organization existed, a prominent, energetic and willing oculist was selected. This "state manager," as he was called, was to enlist the assistance of all the oculists he could, acting, wherever possible, in harmony with local and state medical societies, both ophthalmological and general. Prominent and energetic oculists were to be found to give lectures on the conservation of vision, such lecturers to reside in different portions of the state, so that long and expensive journeys should not be necessary. The state manager corresponded with local medical societies, women's clubs, teachers' institutes, boards of health and education, etc., and arranged for these lectures, by invitation. The expenses of the lecturer were to be paid, if possible, by the organization issuing the invitation. The lectures were to last about one, hour, and were to be given in plain and unscientific language, with a discussion following. In order to make these lectures easy to deliver, the committee prepared a box of about thirty colored and uncolored stereopticon slides and sent them to each state manager, to be loaned to his associates in the work, whenever a lecture was to be delivered. In addition to this a pamphlet was prepared, entitled "A Plan of Campaign for the Conservation of Vision." This pamphlet contained a full description of the plan, and what it was proposed to accomplish. A kind of skeleton lecture was included in it, suggesting subject, etc., to be referred to in lecturing. These pamphlets were freely dispensed to all state managers, who distributed them to their associates in the work. Each lecturer was also placed on the mailing list for the *Press Bulletin*, and also received a complete set of the "Conservation of Vision Pamphlets." Quantities of the Vision Charts for Schools were also sent into each state. While these lectures were intended to cover all avenues of vision conservation, it was especially hoped that it would result in the use of the Crede treatment of the eyes of all new-born babes; in the lessening of shop accidents; and in the annual and systematic examination of all school children's eyes by school teachers; for it is reasonably certain that if these three procedures could be universally adopted, eighty per cent. of all blindness could be eliminated from this country. The establishment of measures referred to above could be accomplished at an annual cost

which would not exceed $250,000. It costs $15,000,000 a year to care for the dependent blind in this country alone, to say nothing of those children more or less incapacitated by defective or diseased ears, noses and throats.

Emphasis should be laid on several points connected with the annual systematic examinations of school children's eyes, etc., by school teachers. *First*, the examinations are simple and require no medical education. *Second*, teachers are not expected to make diagnoses. They merely ascertain the fact through the questions that something is wrong, and leave the rest to the doctor selected by the family for consultation. *Third*, a child can be easily examined in five minutes and each teacher should examine the children attending her own room. By subdividing the work in this way, all the children in any city of any size can be easily examined in one day—a definite day—in the early fall—of each year should be set aside for these tests in all cities. *Fourth*, these tests not only benefit the children by leading to the correction of their eye, ear, nose and throat defects, but the correction of these defects benefits the teachers because such corrections usually add materially to the intellectual and moral character of the children, thus rendering them much easier to teach, and more pliable to discipline. Teachers should, therefore, be glad to do this work. *Fifth*, there is no objection to these examinations being made by doctors or school nurses. This, however, would cost large sums of money and boards of education and health are never allowed enough money for even ordinary purposes. This is a fact which might as well be frankly recognized and acted upon. The teachers are capable of doing it, and it takes no extra time. It is a benefit to themselves as well as to the children. It costs practically nothing; therefore, let it be done in this way.

The question may be pertinently asked, "What has been the result of the state lectures?" This has varied greatly in different states. The state managers accepted the work voluntarily after the ideals were thoroughly explained. After a promise of conscientious work was given the box of slides and printed matter were sent, representing an outlay of about $25 for each state. In some states this ended the matter, and so far as the chairman of the committee knows, no work whatever has been done in some states, no lectures delivered and nothing accomplished. Letters have remained unanswered and appeals unheeded. This has, therefore, been rather discouraging. In other states the work, for one reason or another, has been delayed, but still something has been done, as many lecture engagements have been made for next fall. But, the speaker was glad to say, in most of the states honest, conscientious work has been accomplished and excellent results achieved. The results are, of course, not all that could be desired, but still, considering that this is the first year of the committee's existence, Dr. Allport felt that he should be very grateful to those gentlemen who have given this project their time, their labor and their means.

As to the future of the work he would recommend:

1. The continuance of a weekly article on the eye for the *Press Bulletin* of the council on health and public instruction.

2. A few more conservation of vision pamphlets on interesting subjects and the increased circulation of these pamphlets.

3. The continuation of the conservation of vision lectures in the various states. Many more of these lectures should be delivered and the state managers should be changed, where the present managers have not shown a reasonable interest in the work. From twenty to twenty-five new slides for the stereopticon should be made that will more fully illustrate the subject.

4. The speaker was at first in favor of encouraging the formation of state societies for the conservation of vision, these societies to possess complete self-government, but all of them to declare themselves in affiliation with the committee on conservation of vision of the council on health and public instruction of the American Medical Association, by a slender thread of connection. He was also in favor of asking those states already possessing state organizations to join with the committee in the same sort of affiliation. Also of proposing an annual meeting of this affiliated organization and the formation of a national body of this nature for the conservation of vision. But time and experience have considerably modified his views, and he now believes that other plans are better.

First, there is already a national society of this nature. It is, it is true, highly inactive, but still it exists and should, he believes, be encouraged to an awakening activity. Second, local conditions in many of the states are not conducive to friendly assistance. However well meant, it is in some states regarded as meddlesome interference, as an effort to rob existing organizations—whether active or lethargic—of some credit, which it is felt should remain with the local organization and not be shared with even a well-intending interloper. These views are but natural to those people who have worked hard to develop a praiseworthy state society. They want the credit for their work, and should have it, and he believes it is better that they should be let alone and not asked to merge their identity or work with that of another organization. His recommendation, therefore, for the future is that this committee shall do what it can to inspire the formation of state conservation of vision organizations, either as independent medical and lay societies or as commissions of the state governments. It should stand ready to advise and assist such work in any possible mannner, but it should not suggest a formal connection of any description with the committee of the American Medical Association. This committee should also be equally ready to advise or assist state organ-

izations that already exist and should co-operate with them in any way they may properly request.

He would also recommend that the work of the committee be extended, so that it shall become a potent power in the community. It should have a central office, with a paid, interested, intelligent, energetic secretary, who could and would from time to time journey from state to state, upon request, and assist in the formation and perpetuation of state societies for the conservation of vision. His traveling expenses should be paid by those who summon him to the various localities. He should have a well-equipped office, with one or two stenographers, and a library and files, containing *everything* that is printed on the subject of conservation of vision. This office should be recognized as a central bureau of assistance, advice, literature, laws, etc., where all questions concerning this subject can and will be intelligently and willingly answered. The work of such an office would be enormous and its influence widespread. But to do this considerable money would be absolutely necessary and he would, therefore, recommend that this money should be forthcoming from some source, and that the good work be encouraged to go on. He would also advise the distribution in all schools of crisply and plainly written leaflets concerning the care of eyes, ears, noses and throats These should be taken home, so that the parents could read them. They should be printed in various languages. Perhaps even a better plan would be to have suggestions of this kind printed on the blank flyleaf of all school books. This would cost almost nothing extra and the benefits to be derived would be incalculable.

Dr. Richard J. Tivnen presented a paper, illustrated by stereopticon, on "Blindness Due to Ophthalmia Neonatorum."

An extended review of the subject was given and numerous tables shown illustrating the prevalence of ophthalmia neonatorum, the proportion of the disease in relation to blindness from all causes and the proportion of blindness caused by ophthalmia neonatorum. From these conclusions were drawn that one-eighth of blindness from all causes is due to this disease and one-fourth of the blindness among children is attributable to the same cause.

A comparison of the cases of ophthalmia neonatorum to all diseases of the eye showed:

| | Per Cent. |
|---|---|
| 1. Illinois Charitable Eye and Ear Infirmary, Chicago | 1.30 |
| 2. Massachusetts Charitable Eye and Ear Infirmary, Boston | 1.04 |
| 3. Manhattan Eye, Ear and Throat Hospital, New York | 0.03 |
| 4. New York Eye and Ear Infirmary, New York | 0.08 |

A comparative table showing blindness caused by ophthalmia neonatorum showed:

| | Cases. | Per Cent. |
|---|---|---|
| Magnus' table of 2,528 cases of blindness in Germany, ophthalmia neonatorum caused blindness in | 275 | 10.876 |
| Trousseau's table of 625 cases of blindness in France, ophthalmia neonatorum caused blindness in | 29 | 4.60 |
| Oppenheimer's table of 572 cases of blindness in the United States, ophthalmia neonatorum caused blindness in | 18 | 3.10 |

The census returns from England and Wales (1901) showed one-third of the cases of "Blind from childhood" were blinded by ophthalmia neonatorum, approximately 1,500. Causes of blindness in London school children (based on 362 cases) showed ophthalmia neonatorum to be the most frequent cause of blindness, with a percentage of 36.36. Other statistics gathered by various workers showing percentage of blindness produced by ophthalmia neonatorum are as follows:

| | Pct. |
|---|---|
| Reinhard, Germany, Austria, Denmark, Holland | 40 |
| Claisse, Paris | 46 |
| Magnus, Breslau | 34 |
| Katz, Berlin | 41 |

The "Special reports on the blind and deaf (1901), United States census," showed 2,556 lost sight after birth but under one year of age, and in 644, or 25.2 per cent of these cases, the cause of blindness was probably ophthalmia neonatorum.

The New York Association for the Blind in a pamphlet on this subject states:

"The official census of New York state (year 1906) gives a total of 6,200 blind persons in the state. Ten per cent of the blindness (or 620 blind persons) was due to ophthalmia neonatorum."

The same observers present tables from eleven schools of the blind throughout the United States and Ontario, showing the proportion of children admitted during the year 1907 who had lost their sight from ophthalmia neonatorum. These percentages show a maximum of 50 per cent and a minimum of 12.50 per cent of cases who had lost their sight from this disease.

A reference to the activity of midwives and obstetric practice showed that "In Chicago in 1904 86 per cent of all births, principally among Italians, were reported by midwives. In Buffalo nearly one-half of the births in one year were attended by midwives. In New York City, in 1905, 43,834 births, or 42 per cent of the whole number, were attended by midwives. For the year 1907, in New York City, there were 68,186 births reported by physicians and 52,536 reported by midwives. In September, 1908, the registered midwives in the five boroughs of New York City numbered 1,382."

The author of these reports well concludes: "In the face of these figures it is idle to talk of the elimination of the midwife."

The essayist touched on the economic side of the question, stating that it costs the state $3,000 to educate a blind child, and referring also in this connection to the cost of the equipment and maintenance of blind schools and the loss in the earning capacity of the individual and the curtailing of "ave-

nues of opportunity" which the blindness imposes.

A consideration of the etiology, pathology and clinical course and treatment of the disease was presented and a plea made for a more general use of Crede's method of prophylaxis. The essayist also made known the plan which the committee of the Chicago Ophthalmological Society is inaugurating to aid in the prevention of infections due to ophthalmia neonatorum. In brief, it was the plan described by the New York Association for the Blind and was designed to follow three general lines:

1. Educational.
2. Legislative.
3. Co-operative.

EDUCATIONAL.—Through the preparation, publication and dissemination of printed matter emanating from the committee or approved by it; through public lectures, addresses and exhibits, and by means of the press, upon whose generous assistance the committee greatly relies.

The object sought is to spread among the general public the knowledge that infant ophthalmia is a dangerous, infectious disease, fatal to sight unless checked at the time of the birth of the child, easily preventable then if simple precautions are taken; to inform parents, more especially, of the dangers which threaten the sight of their children at birth and the preventive measures which should be taken, and to advocate the universal adoption of such measures.

LEGISLATION.—To promote such legislation as may be needed to accomplish the object in view—the prevention of the unnecessary blindness of infants.

CO-OPERATION.—In furtherance of the same object the committee seeks and invites co-operation with medical societies, health officers, ophthalmic, maternity and other hospitals in which children are born; dispensaries, city missions settlements; with schools, institutions and associations for the blind, and with all societies engaged in work for children and for social betterment; with district visiting nurses and with all persons who are already engaged in this work or who desire to help in it.

## THE COST OF BLINDNESS TO THE STATE.

Dr. Thomas Woodruff said that much of the blindness of the world is due to causes that are easily preventable and this can be done at a cost that is small compared with what is needed to educate and care for those who have been deprived of sight. Any individual who through some cause or other has his sight destroyed has his earning power absolutely taken from him. He must become dependent upon outside aid for his future maintenance, and the community loses an asset consequent upon his withdrawal from productive activity. If the blindness occurs in early childhood, the greater the cost to the state. The blind child must be educated in schools specially provided, special teachers are required, and the cost is proportionately higher than in schools where the seeing child receives instruction.

It costs the state of Illinois over $300 a year for the maintenance of each blind person under its care. That is, the state of Illinois pays out approximately $100,000 a year for the education and maintenance of the blind under its immediate care.

The cost of maintenance to the United States of the dependent blind is about $10,000 per capita through life. It costs this country all of $25,000,000 a year in taking care of the blind. Then there is the matter of unemployment and reduced earning capacity. The average wage of those of the blind men who are employed is $7 a week; that of the woman, about $3 a week. There is no definite data as to the number of blind employed.

Now, as to the cost of preventing unnecessary blindness, and a conservative estimate places the number of cases of preventable blindness at about 40 per cent of the total number. The cost to the community consists of cost of treatment at the onset of the disease, cost of educating the blind, and cost of maintenance, and added to this is the loss occasioned by unemployment as well as reduced earning capacity of the one afflicted.

The cost of treatment is difficult to estimate, as can readily be seen, but this is the smallest item.

As to cost of prevention, let us take the most frequent and most potent cause, as well as the most preventable and most unnecessary form of blindness —ophthalmia neonatorum.

A 1 per cent solution of nitrate of silver instilled into the eye at birth is a sure preventive. Nitrate of silver is cheap. Add to it the cost of containers and expense of distribution and we can save babies' eyes at the rate of two for a cent. Compare this insignificant sum with the cost of blindness. It would cost $25,000 a year to save the eyesight of the 2,000,000 babies born each year in this country, as against the $25,000,000 to educate and maintain those who have lost their eyesight through carelessness and neglect.

## WHAT THE STATE CAN DO TO PREVENT BLINDNESS.

Dr. Willis O. Nance said that it is a shame that the example set by Illinois five decades ago in establishing an institution having for its object the worthy aim of preventing its indigent citizens from becoming blind or deaf has not been followed by other commonwealths, except in a very few instances. The number of citizens who owe their useful vision to the care of this institution must number in the thousands.

Illinois, for more than a decade, has had a law on its statute books requiring that midwives report within twenty-four hours all cases of "babies' sore eyes." The penalty for non-compliance with the provisions of this statute is a maximum fine of $100 or six months' imprisonment, or both. It is possible that the existence of this law has been the means of saving some infants' eyes, but every oculist in Chicago knows that the statute is not enforced to the extent that it should be.

Chicago has an ordinance requiring that physicians, midwives or other attendants report every case of ophthalmia neonatorum to the department of health within twenty-four hours after its occurrence.

Strict enforcement of these two laws would, Dr. Nance believes, accomplish much in the prevention of blindness in our community.

The state might also with propriety go back even farther than the conscientious enforcement of the midwife notification law. It might with decided advantage make much higher the requirements for the practice of midwifery in Illinois. It might also require that midwives employ the Crédé prophylactic method at every birth, as is done in some states.

The Chicago ordinance requiring that all cases of ophthalmia neonatorum be reported to the health department might well be made a state law. State legislation requiring report of all births, with the information as to whether prophylactic drops were employed or not and "if not, why?" might well be adopted. It might be well to have printed instructions for the care of babies' eyes printed, as occasion demanded, in various languages, circulated in the homes.

Free distribution of nitrate of silver drops by the state should be encouraged. In at least one state, the speaker has been told, these ampoules of silver are sent to every practicing physician and midwife, irrespective of request. They are inexpensive and a comparatively small appropriation is necessary to provide every person who performs obstetrical work with them.

Ample hospital service for the treatment of cases of ophthalmia occurring among the needy should be provided by the state. Illinois, through her state infirmary, has done better for these cases than have most of the states of the Union. Yet she could go even farther by training in her infirmary to handle such cases. A training school for nurses with a course extending over a period of several weeks or months might well be established and maintained at the state infirmary in this city.

Trachoma, responsible for about one-tenth of all blindness in Illinois, must also be reckoned with by the state. This means more adequate enforcement of laws affecting the sanitation of houses, institutions, etc. The ordinance prohibiting the common towel in public places, passed by the Chicago city council at the instance of the speaker, might with equal value be made effective throughout the state.

Ocular injuries are responsible for perhaps 5 per cent of blindness. The greater number of these injuries are preventable, many of them being due to carelessness and ignorance.

The explosive golf ball has entered the realm of sight destroyers to quite an extent the past few years.

Industrial injuries do not seem to be occurring with the same degree of frequency that they did in the past. Manufacturers and railroad officials are furnishing much better means of protection for their employes than formerly. In this connection, however, the state might well attempt to prevent the removal of foreign bodies from the eyes of workmen and others by non-medical men. Every oculist of experience has seen the dire results following this practice.

Wood alcohol blindness has become of sufficiently frequent occurrence to demand better regulation of its use in industrial pursuits and in its sale to the public.

The state can accomplish much in preventing defective vision and blindness on the part of its citizens by improvement in the school system, so far as it relates to the illumination of schoolrooms, the size and position of desks and seats, the size and character of the print of books, the kind of paper used, etc. The state might with prudent propriety demand that school superintendents, principals and even teachers have some knowledge of physiologic optics, the effects of poor illumination, etc., before they are permitted to qualify for their positions under the law. The state can do much to prevent blindness, but it cannot be expected to shoulder the entire work and responsibility. Through its various institutions and officials it can do much to spread the gospel of education—a decidedly potent factor in the propaganda we are promoting especially at this meeting. Through its lawmaking bodies and executive departments it can assist materially.

There was no discussion on the symposium and the meeting adjourned.

PAUL GUILFORD, Secretary.

## Personals

Dr. R. H. Willingham, of Elizabethtown, has purchased the practice of Dr. Kurtz at Neoga.

Dr. Albert J. Roberts, Ottawa, has been re-elected physician of La Salle county.

Dr. William E. Buehler has been elected president of the Public Safety Commission.

Dr. R. L. Kurtz, Neoga, formerly secretary of the Cumberland County Medical Society, has removed to Nowata, Okla.

Dr. Thos. Morgan has removed from Goreville, Illinois, to 644 East Second street, Alton, Ill.

Dr. Albert F. Storke, for five years president of the Board of Health of Oak Park, has resigned.

Dr. and Mrs. Joseph L. Hancock and daughter have returned after an extensive trip through the west, including California.

Dr. W. A. Newman Dorland has resigned as professor of obstetrics in the Bennett Medical College.

Dr. Frederick W. Werner, Joliet, who has been critically ill with septicemia at the Silver Cross Hospital, Joliet, is slowly improving.

Dr. A. M. Corwin, Chicago, chairman of the Committee on Medical Education of the Illinois State Medical Society, denies that he "sat" for the picture of Satan in the September Journal.

Clara Harrison Town, Ph. D., has resigned as psychologist at the Lincoln State School and Colony and opened an office as consultant psychologist at 122 South Michigan avenue, Chicago.

Dr. Thomas H. Glenn, formerly in charge of the pathologic and bacteriologic laboratories of the Northwestern University, has been placed in charge of the clinical and Roentgen-ray laboratories now being installed in the First National Bank building, Fort Dodge.

Drs. Charles B. Horrell, Galesburg; Nina P. Merritt, Alton; F. E. Roberg, Joliet; George B. Kelso, Bloomington; Ora L. Pelton and family, Elgin; Dr. and Mrs. R. S. Denney, Aurora; Dr. and Mrs. Karl F. Snyder, Freeport; Mrs. B. Barker Beeson, Truman W. Brophy and daughter, Samuel Salinger, James P. Way, Carl Langer and family, Bradford A. Camfield and Mrs. Camfield, W. H. Allport and family, Sara C. Buckley, all of Chicago, have returned from Europe.

## News Notes

—This issue of the JOURNAL has been copyrighted, to prevent the pirating of its contents by other publications.

—A new hospital has been opened by A. W. Chandler in Rochelle as a public institution. It is open to all regular practitioners.

—The Board of Education of Springfield stated that all teachers in public schools must undergo physical examination and obtain certificates of health before being allowed to take positions.

—The *Williamson County Physician* for September contains an account of the meeting of August 25 held at the Elks Home in Marion. The program was a general discussion of "Post-Graduate Study for the Physician."

—Extra copies of this issue of the JOURNAL can be secured at the office of publication, 3338 Ogden avenue, Chicago, by remitting a money order, draft or Chicago check for $2. If checks on out-of-town banks are sent, 10 cents extra should be included for exchange.

—The article on "Arterio-Venous Anastomosis" in the September JOURNAL, attributed to Dr. Dow W. Neal, was written by Dr. Don W. Deal of Springfield. Mistakes are liable to occur in printing shops as well as in "well regulated" families, especially when copy is sent without the writer's name.

—The secretary of the State Board of Health, Dr. C. St. Clair Drake, is insisting that rat extermination and clean-up campaigns shall continue to be actively carried on at all Illinois ports of entry for passengers and merchandise from New Orleans and other territory and on all boat and rail transportation companies entering Illinois from the south.

—The nineteenth annual conference of Charities and Corrections will be held October 24 to 27, at La Salle, Peru and Oglesby. At the same time and place, the Illinois Anti-Tuberculosis Association, the State Probation Officers' Association and the State Association of Superintendents of County Homes will hold their annual meetings. Dr. Emil G. Hirsch, Chicago, is president of the conference.

—The *Madison County Doctor* for September displays its usual energy by getting up a newsy number when the bulletins of many societies take a well-earned rest. An item worthy of emulation is the statement that "Every member of our society has paid his dues for 1914—except three." The August meeting, of which we hope to have a fuller report later, was held at the Harrison Tubercular Colony at Collinsville August 7, and was a rousing good meeting.

—The *Bulletin* of the Montgomery County Medical Society for September contains an account of the picnic meeting held at Chautauqua Park, August 18. Among the guests were Mrs. A. L. Brittin, president of the Illinois State Medical Society; C. H. Burkhardt, of Effingham, councillor; T. H. D. Griffiths, of the State Board of Health, Springfield, and Don W. Deal, of Springfield. The perfect weather and fine program attracted a large attendance of members.

—In the schedule of minimum requirements issued by the State Board of Health, August 4, this clause is included, "No medical college shall

be considered in good standing for the purpose of the Illinois Medical Practice Act, that does not require after July 1, 1918, of all students, excepting graduates of colleges of arts or science to whom advanced standing is given, in accordance with the requirements of this board as a condition of graduation, an attendance on five full courses of lectures in five separate years."

—The thirteenth meeting of the Robert Koch Society for the Study of Tuberculosis was held September 16, 12 m., at the City Club, Chicago. Subject: Condition of the Skin in Tuberculosis.

The society was addressed by Dr. Joseph Zeisler: Non-Tuberculous Lesions Occurring in Tuberculosis; Dr. Oliver S. Ormsby: Tuberculous Lesions, and Dr. Williams A. Pusey on Treatment of Cutaneous Tuberculosis.

These meetings are held monthly, and at each meeting the society is addressed by some worker along special lines of the tuberculosis question. The meetings are always instructive and all are of interest to any practitioner.

—The following appointments have been made to the faculty of the University of Illinois, College of Medicine: Dr. D. A. K. Steele has been appointed Senior Dean and Head of the Department of Surgery in the College of Medicine of the University of Illinois.

It was largely through Dr. Steele's efforts that the College of Physicians and Surgeons became an integral part of the University of Illinois as its permanent Medical Department.

Charles Spencer Williamson, Professor of Medicine and Head of the department; Charles Sumner Bacon, Professor of Obstetrics and head of the Department of Obstetrics and Gynecology; Julius Hays Hess, Associate Professor of Pediatrics and Head of the Division of Pediatrics; Norval Pierce, Professor of Otology; Joseph C. Beck, Associate Professor of Laryngology and Rhinology and Head of the Division; Oscar Eugene Nadeau, Instructor in Surgical Pathology; A. O. Shoklee, Associate Professor of Pharmacology; Roy L. Moodie, Instructor in Anatomy; C. S. Smith, Instructor in Physiological Chemistry.

## Marriages

Charles H. MacPherson, M. D., to Miss Lora Frances Anderson, both of Modesto, Illinois.

Arthur Monroe Calvert, M. D., Chicago, to Miss Anna May Gorby of Cave City, Ky., at Indianapolis, September 5.

William S. Hector, M. D., to Miss Edna E. Dickens, both of Chicago, at Crown Point, Ind., August 22.

Alexander Edwin McCornack, M. D., Elgin, Ill., to Miss Josephine Jernstad of Ishpeming, Mich., August 26.

Albert Horr Montgomery, M. D., Chicago, to Miss Elizabeth Russell of Tulare, Cal., August 22.

Charles Merrill Rose, M. D., Galesburg, Ill., to Miss Marguerite Connery of Chicago, September 21.

## Deaths

Nathaniel P. Ward, M. D., Rush Medical College, 1894; died at his home in Saybrook, Ill., August 20, from pernicious anemia, aged 50.

John H. Lane, M. D., Washington University, St. Louis, 1874; long a practitioner of Medora, Illinois; died at his home, September 7, from heart disease.

Henry Redlich, M. D., Rush Medical College, 1883; a member of the Illinois State Medical Society; died at his home in Chicago, August 30, aged 82.

Charles Franklin Barstow, M. D., Hering Medical College, Chicago; 1898; was found dead in his office in Freeport, Ill., August 30, from cirrhosis of the liver, aged 59.

Leonard H. Spalding, M. D., University of Maryland, Baltimore, 1869; for thirty-three years a practitioner of Peoria, Ill.; died in Rochester, Minn., August 22, from heart disease, aged 69.

Benjamin Dorr Colby, M. D., Rush Medical College, 1884; a member of the Illinois State Medical Society; died at his home in Austin, Chicago, August 14, from cerebral hemorrhage, aged 64.

William D. Flack, M. D., Northwestern University Medical School, Chicago, 1912; of Farmington, Ill.; died in Wesley Hospital, Chicago, August 26, from meningitis following a mastoid operation, aged 31.

Lucinda Hall Corr, M. D., Northwestern

University Woman's Medical School, Chicago, 1874; a member of the Illinois State Medical Society; died at her home in Carlinville, Ill., September 3, aged 70.

FREDERICK F. CHAFFEE, M. D., New York University, New York City; 1877; a member of the Vermont State Medical Society and Illinois State Medical Society; died at his home in Chicago, August 17, from nephritis, aged 59.

JOHN C. HALLAM, M. D., Marion-Sims College of Medicine, St. Louis, 1899; a Fellow of the American Medical Association; for several years a practitioner of St. Louis; died at his old home in Centralia, Ill., August 13, aged 38.

CHARLES H. BACON, M. D., Northwestern University Medical School (Chicago Medical College), 1862; surgeon of volunteers during the Civil War; a resident of Lockport, Ill., since 1852; died at his home in that city, August 26, aged 80.

ARTHUR WESLEY HAMMER, M. D., Northwestern University Medical School, Chicago, 1911; formerly of Arbuckle, Cal.; was found dead in the bathroom of his apartment in Chicago, August 30; it is believed from water gas asphyxiation, aged 32.

LISTON HOMER MONTGOMERY, M. D., Northwestern University Medical School, Chicago, 1871; a Fellow of the American Medical Association; a veteran of the Civil War; secretary of the Ohio Society of Chicago; died at his home in that city, August 24, from cerebral hemorrhage, aged 66.

Dr. Corr was born in Carlinville, Ill., the doughter of Oliver W. Hall and Deborah Redman Hall, pioneers of Macoupin county. She was married to Dr. A. C. Corr, April 20, 1865, became a teacher, later studied medicine, and was first to graduate from her college. She was a valued member of the Macoupin County Medical Society for forty years, and an active member of the Illinois Woman's Christian Temperance Union. She was associated with her husband in practice till his death twelve years ago, and enjoyed the reputation of being a skillful physician as well as a woman of superior literary attainments.

### SOME PREPARATION ANYWAY.

"Are there enough lifeboats for all the passengers?"

"No."

"Are there enough life preservers for everybody?"

"No."

"Well, hasn't anything been done in preparation for shipwreck?"

"Well, the band has learned to play 'Nearer, My God, to Thee,' in the dark."—*Waif.*

---

### A SLIGHT MISTAKE.

"I wouldn't drink out of that cup," interposed little Johnny to the well-dressed young man who had been introduced to his sister the night before. "That's Bessie's cup and she's very particular who drinks out of it."

"Ah," returned the young man, draining the cup, "I feel honored to drink out of Bessie's cup. She is your sister, is she not?"

"Not much. Bessie is my dog."—*Harper's.*

---

### DIDN'T LIKE THE SIGN.

A western horseman tells of a jockey at Windsor, across the line from Detroit, who was recently indisposed.

"If I don't get rid of this cold soon," said the youngster, "I'll be a dead one."

---

The English and the American definition of lady, illustrated:

An American physician working in a London hospital, while in conversation with a bright looking English girl made a remark about his "work." With a surprised look the girl asked, "Why you are a gentlemen, are you not?" "Certainly," he replied, "aren't you a lady?" "No," was the unexpected answer, "I work in a laundry."

The American idea is somewhat different: A colored damsel came into the American clinic with a badly lacerated ear. The physician inquired the cause of the injury." "'Nother lady bit me," was the answer.—*From the Williamson County Physician.*

---

"Didn't you see Dr. Spinks, as I told you?" asked a friend.

"No. The sign on his door said '10 to 1,' and I wasn't going to monkey with a long shot like that."—*Harper's.*

---

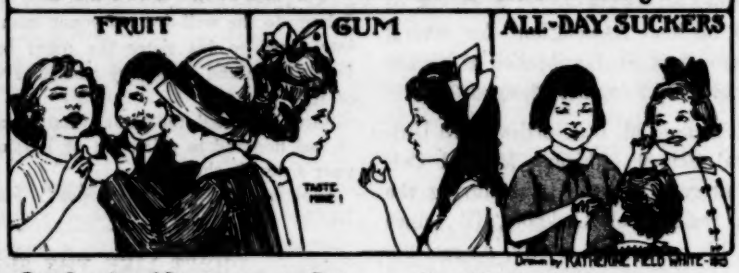
A vacation that does not recreate is not much of a vacation.

---

It doesn't pay for you to take a passive interest in matters that affect either for good or harm the community in which you live.

# DON'T EAT. ▾ DRINK ▾ BREATHE DIRT

## Second Bites are First Class Dangers




Drawn by KATHERINE FIELD WHITE-1925

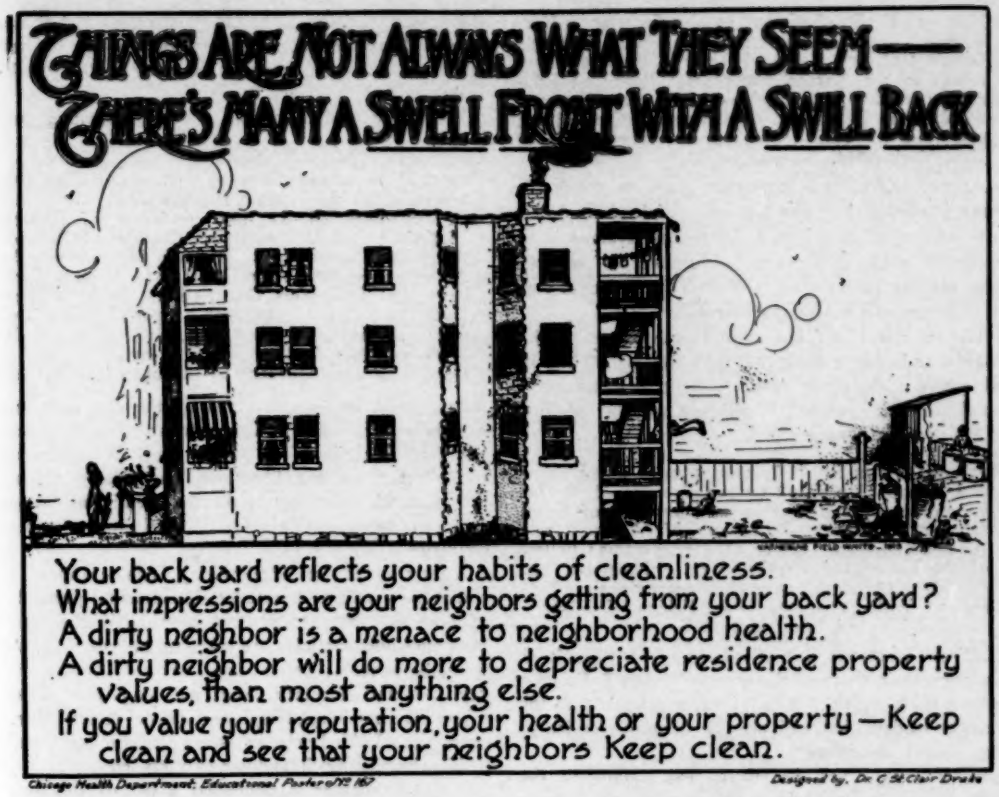
Pens, Pencils and Pennies carrying Dirt
From Mouth to Mouth do grievous Hurt

If you "Catch a Cold" you catch it from Somebody.

ON FOOD THAT'S SOILED BY DIRT. FLIES. FINGERS
THE SEED OF ILLNESS OFTEN LINGERS. ▾▾▾

Drawn by KATHERINE FIELD WHITE-1925

*Chicago Department of Health, Educational Poster No. 236* *Designed by Dr. C. St. Clair Drake*


THINGS ARE NOT ALWAYS WHAT THEY SEEM—
THERE'S MANY A SWELL FRONT WITH A SWILL BACK
Your back yard reflects your habits of cleanliness.
What impressions are your neighbors getting from your back yard?
A dirty neighbor is a menace to neighborhood health.
A dirty neighbor will do more to depreciate residence property values, than most anything else.
If you value your reputation, your health or your property—Keep clean and see that your neighbors Keep clean.
Chicago Health Department: Educational Poster #12 167
Designed by Dr. C St Clair Drake

Early rising is yeast in the health dough.
Then, too, you gain by an early bedtime.

---

How about a clean-up this fall? Why not get busy?

---

Wash your vegetables and fruits. They may come to you with little or no attention given as to cleanliness. Particularly is this true of peaches and other fruits which are often marketed on the sidewalks, exposed to street dirt. To be safe, all fruits with rinds should be pared before eating.

---

Vice is closely related to all diseases, because of excesses, but more directly the producer and incubator of those dirty diseases which, for politeness sake, are called "social diseases." Efficiency wanes in the "red-light neighborhood;" for how may anyone show efficiency if he be disease-laden and full of alcohol, to say nothing of the insidious moral effect of such associations?

*From Bulletin Chicago Department of Health.*

---

## NEW AND NON-OFFICIAL REMEDIES.

Since publication of New and Nonofficial Remedies, 1914, and of the supplement to New and Nonofficial Remedies, 1914 (July 1, 1914), the following articles have been accepted for inclusion with "N. N. R.":

Fougera & Co., Electrargol for Injection, 10 cc. Ampules.

Hynson, Westcott & Co.: Urease-Dunning.

H. K. Mulford Co., Hypodermic Tablets of Emetine Hydrochloride.

Waukesha Health Products Co., Hepco Flour, Hepco Dodgers, Hepco Grits.

E. Fougera & Co., Electrargol. At the request of the manufacturer, Comar & Co., Paris, the council has recognized E. Fougera & Co., New York, as the American selling agents for the product. Also in view of information received from Comar & Co. it has modified the new and Nonofficial Remedies description for Electrargol to indicate that this product now contains the equivalent of .4 per cent of metallic silver.

---

## Book Notices

A MANUAL OF PRACTICAL HYGIENE. For Students, Physicians and Health Officers. By Charles Harrington, M. D., late Professor of Hygiene in the Medical School of Harvard University. Fifth edition, revised and enlarged by Mark W. Richardson, M. D., Secretary to the State Board of Health of Massachusetts, in collaboration with the following officials connected with the Massachusetts State Board of Health: W. H. Clark, Chief Chemist; X. H. Goodnough, Chief Engineer; William C.

Hanson, M. D., Assistant to the Secretary; Hermann C. Lythgoe, Chief Analyst of Food and Drug Department, and George H. Martin, formerly Secretary to the Massachusetts State Board of Education. Octavo, 933 pages, with 125 engravings and 24 plates in colors and monochrome. Cloth, $5.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

As preventive medicine comes more in vogue the more important becomes the study of hygiene. This fifth edition of Harrington's Practical Hygiene is an extensive work, covering a vast number of subjects. The various subjects are studied in a practical way and illustrations are used freely.

The book will be found of immense value to health boards, and it is a work that may well be studied by all school and factory inspectors, or any one interested in public hygiene. It will be a valuable addition to the doctor's library.

Diseases of the Skin, Including the Acute Eruptive Fevers. By Frank Crozer Knowles, M. D., Instructor in Dermatology in the University of Pennsylvania; Clinical Professor of Dermatology, Women's Medical College of Pennsylvania; Fellow of the College of Physicians of Philadelphia, etc. Octavo, 546 pages, with 199 engravings and 14 plates. Cloth, $4.00, net. Lea & Febiger, Publishers, Philadelphia, and New York, 1914.

A new work on skin diseases, by Dr. Frank C. Knowles, is fresh from the presses of Lea & Febiger. It is a book which will be of value primarily to the medical student, but will also be of good service to the general practitioner.

It seems to cover the entire field. Many of the subjects are treated briefly, yet clearly, and a large number of photographs illustrate the text greatly. The author has laid especial stress on treatment, the various methods being clearly and definitely outlined.

We recommend it to the student or general practitioner.

Local Anesthesia: Its Scientific Basis and Practical Use. By Professor Dr. Heinrich Braun, Obermedizinalrat and Director of the Kgl. Hospital at Zwickau, Germany. Translated and edited by Percy Shields, M. D., A. C. S., Cincinnati, Ohio, from the third revised German edition. Octavo, 399 pages, with 215 illustrations in black and colors. Cloth, $4.25 net. Lea & Febiger, Publishers, Philadelphia and New York, 1914.

This work on local anesthesia should be welcomed by the American profession, and every physician should possess a copy. In America, at least, local anesthesia has not as yet reached the place in surgery which surgeons have hoped for. Nearly every physician has, at various times, attempted at least minor operative procedures under local anesthesia, with unsatisfactory results.

A reading of Professor Braun's book will convince one that many failures at local anesthesia have resulted because the operator has not understood thoroughly the principles and technique. Various monographs in English have overestimated one method, and have applied one method for all tissues and all anatomical structures. This the author has convinced the reader is wrong. The 215 illustrations and photographs clearly demonstrate the method to use for best results in surgical procedures on every portion of the body.

We recommend this book to every practicing physician.

Practical Hormone Therapy: A Manual of Organotherapy for General Practitioners. By Henry R. Harrower, M. D., late Professor of Clinical Diagnosis, Loyola University, Chicago; Fellow of the Royal Society of Medicine; Member of the American Editors' Association, etc. With a foreword by Professor Dr. Arthur Biedl, Vienna. Demy 8 vo., pp. xx-488, with 5 figures, 1914. London: Bailliere, Tindall & Cox, New York. H. R. Harrower, 880 W. 180th St., $4.50 net.

Opotherapy or treatment by the use of animal extracts, while largely employed on the continent and especially in France, is less popular in this country and Great Britain. The present work is an attempt to collect from the literature, particularly abroad, the principal references to the therapeutic indications for these extracts for the use of practitioners in these countries.

After a section on "Preliminary Considerations," in which the action of hormones, fundamental principles of hormone therapy, etc., are considered, the many hormones now available are taken up in order: Those from the pancreas, spleen, liver, thyroid, thymus, kidney, adrenal, pituitary body and epiphysis, testes, ovary placenta, lungs, lymph and carotid nodes. Moreover, several allied substances are also discussed, such as bile, lipoids, pluriglandular extracts, etc.

To each chapter is appended a list of the more important papers, and in addition there is a list of the principal books on the internal secretions and cognate subjects.

As the title implies, the work is eminently practical. Theory is avoided save enough to render the practical hints intelligible. The indications and doses of each of the hormones are collected together in chapter XXXVI., which is truly a multum in parvo.

For the purpose of rendering the work more authoritative, many chapters have been submitted to well-known investigators for their criticism, for example: Hertoghe of Antwerp (thyroid), Beebe, New York, (parathyroid), Ewald of Berlin (secretins), Lepine of Lyons (pancreas), Schafer of Edinburgh (pituitary body), and Starling of London (thyroid).

The work forms an admirable companion to the strictly scientific treatises of Swale Vincent and of Biedl. The distinguished author last named contributes a very appreciative preface, and we can do no better than to emphasize his words: "All those concerned, whether theorists or medical practitioners, will be grateful to you for your labors."—J. B. Murphy.

## BOOKS RECEIVED.

Thirty-Seventh Annual Report of the Board of Health of the State of New Jersey, 1913, and Report of the Bureau of Vital Statistics. Paterson, N. J., News Printing Co., State Printers, 1914.